



# DROUGHT PLAN 2025

## Environmental Report

Report for: Dŵr Cymru Welsh Water

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Plan 2025

Contact:  
Nigel Hepworth,  
Ricardo-AEA Limited, 2<sup>nd</sup> Floor, 30 Eastbourne  
Terrace,  
Paddington, London, W2 6LA, UK.

T: 07548 841618  
E: [nigel.hepworth@ricardo.com](mailto:nigel.hepworth@ricardo.com)

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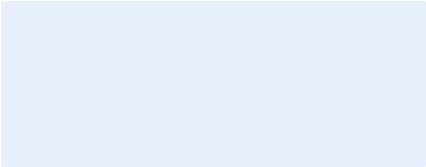
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Ricardo reference:  
ED19443

Author:  
Ingrid Kintu, Katie Moran, Simone Medonos

Approved by:  
Nigel Hepworth

Signed  
DRAFT



Date:  
25 November 2024

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# NON-TECHNICAL SUMMARY

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## INTRODUCTION

Dŵr Cymru Welsh Water (DCWW) published its current Drought Plan in February 2021 (the 'Final Drought Plan 2020'). As required by Welsh Government, DCWW is currently preparing its next Drought Plan 2025. The Drought Plan will detail how DCWW intends to respond to drought conditions, ensuring the continued supply of water to its customers when water resources are depleted whilst minimising any detrimental effects on the environment. It will set out the short-term operational steps that the water company will take before, during and after a drought.

This Non-Technical Summary (NTS) provides an overview of the Environmental Report produced as part of the Strategic Environmental Assessment (SEA) of the Drought Plan. The SEA is being carried out on behalf of DCWW by Ricardo to assess the likely significant environmental effects of the draft Drought Plan and to identify ways in which adverse effects can be avoided, minimised or mitigated and how any positive effects can be enhanced.

The Environmental Report presents the findings of the SEA of the draft Drought Plan 2025. The following sections of this NTS:

- provide an overview of the draft Drought Plan;
- describe the SEA process and how it is applied to the draft Drought Plan;
- summarise the key sustainability issues in the context of SEA and how these are relevant to the assessment of the draft Drought Plan;
- outline the approach to undertaking the assessment of the draft Drought Plan; and
- set out the next steps in the SEA process including how to respond to consultation on the Environmental Report.

## WHAT IS THE DROUGHT PLAN?

DCWW provide essential services to more than 3 million people, including supplying drinking water to most of Wales and parts of Herefordshire and Deeside in England and providing wastewater services to most of Wales and parts of Chester and Deeside in England. DCWW have around 110,000 business (or 'non-household') customers, which includes everything from large industrial sites to small high-street businesses, agricultural businesses, local authorities and charities. The DCWW supply area is shown in **Figure NTS 1-1**.

DCWW are required to prepare and publish drought plans under Sections 39B and 39C of the Water Industry Act 1991, as amended by the Water Act 2003, in accordance with the Drought Plan Regulations 2005 and the Drought Plan Direction 2017.

DCWW's Drought Plan describes how they will provide a secure supply of water to their customers, during periods of low rainfall and droughts when water supply becomes depleted, whilst minimising their impact on the environment. It is a short-term operational plan that sets out what actions DCWW will take before, during and after a drought, including how they will assess the effects, including any environmental impacts, of their actions and what they will do to monitor, prevent and/or mitigate these. DCWW's Drought Plan is developed in line with both NRW's Technical Guidance and Welsh Government's Guiding Principles. .

DCWW's draft Drought Plan 2025 will be issued for consultation early in January 2025, following which they will have 15 weeks to consult and prepare a Statement of Response and revised Draft Drought Plan for submission to Welsh Government. The Statement of Response will set out how DCWW has taken account of the comments received.

For operational purposes DCWW divide their water supply area into three regions; North Wales, South West Wales and South East Wales. However, for water resource planning purposes they further subdivide these three regions into twenty-three discrete water supply systems, known as Water Resource Zones (WRZ) and shown in **Figure NTS 1-2**. These are defined by the extent of the supply network that share the water resources within each zone, whereby the customers in each zone have the same level of service in response to drought conditions.



Figure NTS 1-1: The DCWW Supply Area



Figure NTS 1-2: DCWW's Water Resource Zones



## WHAT IS STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA)?

SEA became a statutory requirement following the adoption of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (the SEA Directive). This was transposed into legislation on 20 July 2004 as Statutory Instrument 2004 No.1633 - The Environmental Assessment of Plans and Programmes Regulations 2004. The Welsh Government has transposed the Directive into appropriate Regulations: The Environmental Assessment of Plans and Programmes (Wales) Regulations 2004.

The objective of SEA is:

*“to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view of contributing towards sustainable development”.*

Throughout the course of the development of the plan, policy or programme, the aim of SEA is to identify the potential impact of options proposed in the plan in terms of their environmental, economic and social effects. If any adverse effects are identified, these options can then be avoided or proposals modified to manage or mitigate adverse effects.

In this context, the purpose of the SEA of the draft Drought Plan is to:

- identify the potentially significant environmental effects of the draft Drought Plan in terms of the measures being considered by DCWW to manage drought conditions;
- help identify appropriate measures to avoid, reduce or manage adverse effects and to enhance beneficial effects associated with the implementation of the draft Drought Plan wherever possible;
- give the statutory SEA bodies, stakeholders and the wider public the opportunity to comment upon the effects that the draft Drought Plan may have on them, their communities and their interests, and to encourage them to make responses and suggest improvements to the draft Drought Plan; and
- inform DCWW's selection of drought management measures to be taken forward into the final Drought Plan.

SEA comprises five key stages:

- Stage A: Scoping;
- Stage B: Develop and Refine Alternatives and Assess Effects;
- Stage C: Prepare the Environmental Report;
- Stage D: Consult on the Draft Plan and Environmental Report and Prepare the Post Adoption (SEA) Statement; and
- Stage E: Monitor Environmental Effects.

Stage A of the SEA of the draft Drought Plan was the production of a Scoping Report which included the review of other relevant policies, plans, programmes and strategies (hereafter referred to interchangeably as 'plans and programmes'), collation and analysis of baseline information, identification of key sustainability issues and development of the assessment framework.

The Scoping Report was consulted on from 10<sup>th</sup> July 2024 to 21<sup>st</sup> August 2024 and set out the proposed framework for assessing the likely significant environmental effects of the Drought Plan. The framework, as set out in the Scoping Report and subsequently updated following comments from the SEA Consultation Bodies, has been used to assess the effects (including cumulative effects) of the drought management measures contained in the Drought Plan (Stage B). These assessments are presented in this Environmental Report (Stage C).

The draft Drought Plan and accompanying documents including this Environmental Report are being submitted to the Welsh Government with a request for publication. Following receipt of the direction to do so, DCWW are publishing the documents for an 8 week consultation, beginning the 10th of January 2025 (Stage D).

Following consultation and analysis of the responses, DCWW will prepare a Statement of Response to the representations received during the consultation period, setting out how and why the draft Drought Plan has been revised to take account of the consultation responses. Where required, DCWW will amend the draft Drought Plan and revise the Environmental Report to reflect these changes. DCWW will send the revised documentation to the Welsh Government for confirmation that all representations have been appropriately accounted for.

Following further direction from the Welsh Government, DCWW will publish the final Drought Plan and implement it accordingly. In conjunction with publishing the final Drought Plan, DCWW will also issue a Post Adoption Statement. This will set out the results of the consultation and SEA processes and the extent to which the findings of the SEA have been accommodated in the final Drought Plan. The SEA requires monitoring of any environmental effects arising as a result of the implementation of the Drought Plan (Stage E).

## WHAT ARE THE KEY SUSTAINABILITY ISSUES FOR THE DROUGHT PLAN?

As part of the SEA process, a review has been undertaken to identify the key sustainability issues which are relevant to the assessment of the Drought Plan. These issues have been identified from a variety of sources, including a review of baseline data and other relevant plans and programmes. A summary of the issues identified as being most relevant to the assessment of the Drought Plan are shown in **Table NTS 1-1**.

Table NTS 1-1: Key Sustainability Issues Relevant to the Drought Plan

| Topic Area                       | Key Sustainability Issues Relevant to the Drought Plan                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Biodiversity, Flora and Fauna    | <ul style="list-style-type: none"> <li>• The need to protect and enhance biodiversity in Wales, particularly within protected sites, species and habitats designated for nature conservation;</li> <li>• The need to continue to increase and improve the condition of priority habitats and habitats of priority species, and restore populations of these species and other specially protected species;</li> <li>• The need to avoid activities likely to cause irreversible damage to natural heritage;</li> <li>• The need to take opportunities to improve connectivity between fragmented habitats to create functioning habitat corridors;</li> <li>• The need to control the spread of Invasive Non-Native Species (INNS);</li> <li>• The need to recognise the importance of allowing wildlife to adapt to climate change; and</li> <li>• The need to engage more people in biodiversity issues so that they personally value biodiversity and know what they can do to help, including through recognising the value of the ecosystem services.</li> </ul>                 |
| Population and Human Health      | <ul style="list-style-type: none"> <li>• The need to ensure that the water requirements of people and visitors can be met at all times, in a sustainable way;</li> <li>• The need to ensure that water supplies remain affordable, in particular for deprived or vulnerable communities;</li> <li>• The need to ensure that the measures contained within the Drought Plan do not negatively affect the health and well-being of the community;</li> <li>• The need to accommodate an increasing population whilst ensuring the continued provision of essential services including water supply;</li> <li>• The need to ensure that the population including vulnerable people are not detrimentally affected by implementation of the Drought Plan;</li> <li>• The need to ensure that the Drought Plan does not have a negative economic impact; and</li> <li>• The need to ensure public awareness of both forthcoming and existing drought conditions in order to maintain resilient, reliable public water supplies without the need for emergency drought measures.</li> </ul> |
| Material Assets and Resource Use | <ul style="list-style-type: none"> <li>• The need to minimise the demand for water resources through water efficiency measures (including metering) and the reduction of leakage in the region;</li> <li>• The need to reduce energy consumption;</li> <li>• The need to ensure the sustainable and efficient use of resources such as construction materials; and</li> <li>• The need to minimise waste arisings, promote reuse, recovery and recycling and minimise the impact of waste on the environment and communities.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Water                            | <ul style="list-style-type: none"> <li>• The need to protect, enhance and restore the quality of the rivers, lakes, estuarine and coastal waters taking into account WFD Regulations Water Body and Protected Area objectives;</li> <li>• The need to protect, enhance and restore the quantity and quality of groundwater resources taking into account WFD objectives;</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

| Topic Area                        | Key Sustainability Issues Relevant to the Drought Plan                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   | <ul style="list-style-type: none"> <li>• The need to ensure sustainable and appropriate abstraction levels and water flow/levels in Wales' waters across the full range of regimes from low to high conditions and meet society's needs for a resilient water supply;</li> <li>• The need to ensure that the continued risk of flooding is reduced or where this is not possible, mitigated effectively using natural flood management, nature based solutions and green engineering where possible; and</li> <li>• The potential effects of climate change and the need to build climate change resilience and adaptation into the water environment and water management.</li> </ul> |
| Soil, Geology and Land Use        | <ul style="list-style-type: none"> <li>• The need to protect, maintain and enhance geomorphological functions and services;</li> <li>• The need to influence how land is managed, promoting sustainable patterns of land use;</li> <li>• The need to conserve and enhance soil quality and function (including carbon sequestration);</li> <li>• The need to protect and avoid damage to Wales' geodiversity and conserve and enhance sites designated for geological interest; and</li> <li>• The need to manage impacts on soil resources, including control of pollution and remediation of contaminated land</li> </ul>                                                            |
| Air and Climate                   | <ul style="list-style-type: none"> <li>• The need to minimise emissions of pollutant gases and particulates and enhance air quality arising from the implementation of the Drought Plan measures;</li> <li>• The need to reduce greenhouse gas emissions arising from implementation of the Drought Plan measures;</li> <li>• The need to take into account, and adapt to, the potential effects of climate change; and</li> <li>• The need to increase environmental resilience to the effects of climate change</li> </ul>                                                                                                                                                           |
| Archaeology and Cultural Heritage | <ul style="list-style-type: none"> <li>• The need to conserve and enhance the historic significance of buildings, monuments, features, sites, places, areas and landscapes of archaeological and cultural heritage interest, and their settings; and</li> <li>• The need to avoid damage to areas with potential for paleoenvironmental deposits during drought condition</li> </ul>                                                                                                                                                                                                                                                                                                   |
| Landscape and Visual Amenity      | <ul style="list-style-type: none"> <li>• The need to conserve and enhance landscape and seascape character, taking into account the effects of climate change;</li> <li>• The need to ensure the special qualities of designated landscapes are protected during drought conditions; and</li> <li>• The need to minimise any negative impacts upon landscape and seascape that may result from measures in the Drought Plan.</li> </ul>                                                                                                                                                                                                                                                |

The key issues listed in **Table NTS 1-1** above have informed the proposed framework that will be used to assess the effects of the Drought Plan.

**Section 2.2 of the Environmental Report summarises the review of plans and programmes relevant to the Drought Plan and SEA that is contained at Appendix C.**

**Section 2.3 presents the baseline analysis, along with how these are likely to change in the future.**



## THE APPROACH TO ASSESSING THE EFFECTS OF THE DROUGHT PLAN

An assessment framework has been developed to assess the environmental effects of the Drought Plan. This framework sets out a number of assessment objectives relating to the key issues identified in **Table NTS 1-1**. For each objective, guide questions are provided. All topics listed in Schedule 2 of the SEA Regulations have been scoped in, however some aspects within certain topics have been scoped out within the broader topic.

The performance of the proposed options within the Drought Plan and any reasonable alternatives have been assessed against these objectives to ensure that each option is assessed in a robust and consistent manner. The assessment framework that was used to assess the draft Drought Plan measures is shown in **Table NTS 1-2**.

In addition to the SEA objectives, the well-being goals of the Well-being of Future Generations (Wales) Act 2015 are fully reflected in the framework to help ensure alignment with national policy and legislation on sustainability. Additionally, highlighted objectives are those directly related to the objective for Sustainable Management of Natural Resources (SMNR), established in the Environment (Wales) Act 2016.

Table NTS 1-2: Proposed SEA Objectives and Appraisal Framework

| SEA Topic                                   | Proposed SEA Objective                                                                                                                                                                                                                                                                                | Proposed Indicator Questions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Welsh Government Well-being Goal(s)                                                                             | Relevant National Well-being Indicators                                                    | Relevant to the Objective for SMNR? |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-------------------------------------|
| <b><i>Biodiversity, flora and fauna</i></b> | 1.1 To protect and enhance designated sites and their qualifying features, biodiversity, priority habitats and species ecological functions, capacity and habitat connectivity and to protect and enhance natural capital and the biodiversity and ecosystem services that contribute to the economy. | <p>Will it avoid damage to aquatic, transitional and terrestrial species and habitats including fish populations (particularly migratory fish)?</p> <p>Will it enhance aquatic, transitional and terrestrial species and habitats?</p> <p>Will it avoid wider impacts to groundwater dependent terrestrial ecosystems (wetlands, peatlands, fens, etc) e.g., due to potential reduced baseflow to groundwater aquifers?</p> <p>Will it protect the most important sites for nature conservation?</p> <p>Will it minimise habitat fragmentation and protect connectivity?</p> <p>Will it provide opportunities for new habitat creation or restoration and link existing habitats?</p> <p>Will it ensure the sustainable management of natural habitats, taking into account climate change adaptability?</p> <p>Will it affect WFD compliance e.g. good ecological potential/status?</p> <p>Will it protect natural capital and ecosystems?</p> <p>Will it improve access to nature for people?</p> <p>Will it protect priority species and habitats?</p> <p>Will it maintain and enhance ecosystem resilience in line with the requirements of the Environment (Wales) Act' and consider the Priority and Resilient Ecological Networks?</p> | <p>A prosperous Wales</p> <p>A resilient Wales</p> <p>A healthier Wales</p> <p>A globally responsible Wales</p> | <p>Status of biological diversity in Wales</p> <p>Areas of healthy ecosystems in Wales</p> | Yes                                 |

| SEA Topic                          | Proposed SEA Objective                                                                                                              | Proposed Indicator Questions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Welsh Government Well-being Goal(s)                                                                                                       | Relevant National Well-being Indicators                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Relevant to the Objective for SMNR? |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
|                                    | 1.2 To avoid and, where required, manage the introduction or spread of invasive and non-native species (INNS).                      | Will it limit, reduce or increase the risk of spread of Invasive Non-native Species (INNS)?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                     |
| <b>Population and human health</b> | 2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing). | <p>Will the draft Drought Plan measure ensure continuity of clean drinking water supply within statutory standards supply at times of drought?</p> <p>Will it help to promote healthy communities and protect from risks to health and wellbeing, including any vulnerable groups?</p> <p>Will the draft Drought Plan measure affect the affordability of clean drinking water?</p> <p>Will the draft Drought Plan measure negatively affect human health by resulting in increased nuisance and disruption (e.g. as a result of increased noise levels)?</p> <p>Will it protect or enhance opportunities for recreation?</p> <p>Will the option affect public access to, or enjoyment of, local green/blue space?</p> <p>Will the option impact on physical health and mental well-being by affecting opportunities for informal outdoor recreation?</p> | <p>A prosperous Wales</p> <p>A globally responsible Wales</p> <p>A resilient Wales</p> <p>A healthier Wales</p> <p>A more equal Wales</p> | <p>Percentage of people in employment</p> <p>Mean mental well-being score for people.</p> <p>Percentage of dwellings which are free from hazards</p> <p>Percentage of people participating in sporting activities three or more times a week</p> <p>Percentage of people satisfied with local area as a place to live</p> <p>Percentage of people satisfied with their ability to get to/ access the facilities and services they need</p> <p>Percentage who feel able to influence decisions affecting their local area</p> | Yes                                 |
|                                    | 2.2 To protect and enhance the economic and social needs of the local community.                                                    | <p>Will it assist in ensuring provision of essential infrastructure services to support a sustainable economy?</p> <p>Will it protect or enhance opportunities for recreation and tourist activities, including navigation?</p> <p>Will it protect PRoW and associated infrastructure?</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                     |

| SEA Topic                               | Proposed SEA Objective                                                                                                                                                    | Proposed Indicator Questions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Welsh Government Well-being Goal(s)                                         | Relevant National Well-being Indicators                                                                                                                                                                                                                                                        | Relevant to the Objective for SMNR? |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| <b>Material assets and resource use</b> | 3.1 To minimise resource use and waste production.                                                                                                                        | <p>Will it minimise greenhouse gas emissions through energy efficiency?</p> <p>Will it minimise waste and/or encourage the reuse and recycling of waste?</p> <p>Will it encourage sustainable design or use of sustainable materials?</p> <p>Will it enable efficient water resource management and ensure maintenance of supply?</p> <p>Will it help to minimise the demand for resources (including water)?</p>                                                                                                                                                                                                                                                                                        | A globally responsible Wales                                                | <p>Capacity (in MW) of renewable energy equipment installed.</p> <p>Amount of waste generated that is not recycled, per person.</p> <p>Emissions of greenhouse gases attributed to the consumption of global goods and services in Wales</p> <p>Emissions of greenhouse gases within Wales</p> | Yes                                 |
| <b>Water</b>                            | 4.1 To protect and enhance the quality of surface, groundwater, estuarine and coastal water and help achieve the objectives of the Water Framework Directive Regulations. | <p>Will it minimise risks of negative effects on water quality?</p> <p>Will it affect WFD compliance, including avoiding deterioration in any status element?</p> <p>Will it prevent a water body or protected area from achieving the objective set out in the relevant RBMP?</p> <p>Will it affect bathing water compliance?</p> <p>Will it avoid contamination of groundwater?</p> <p>Will it affect Drinking Water Protected Area safeguard zones?</p> <p>Will it help to minimise risks associated with unsustainable abstraction of ground and surface waters?</p> <p>Will it impact on any mitigation measures necessary for the water body to achieve or maintain good ecological potential?</p> | <p>A prosperous Wales</p> <p>A resilient Wales</p> <p>A healthier Wales</p> | Percentage of surface water bodies, and groundwater bodies, achieving good or high overall                                                                                                                                                                                                     | Yes                                 |

| SEA Topic                                | Proposed SEA Objective                                                                                                                                                                  | Proposed Indicator Questions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Welsh Government Well-being Goal(s)                                                    | Relevant National Well-being Indicators            | Relevant to the Objective for SMNR? |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------|-------------------------------------|
|                                          | 4.2 To avoid negative impact on surface and groundwater levels and flows, including when this impacts on habitats and/or navigation.                                                    | <p>Will it abstract from a water resource with resource availability (with reference to CAMS status and WFD considerations)?</p> <p>Will it alter the flow or level regime or residence time of surface waters or groundwaters?</p> <p>Will it enable flexible control over the level of abstraction at short notice in response to changing environmental conditions?</p> <p>Will it enable a sustainable use of water resources that balances demand for water with environmental protection?</p>                                                                       |                                                                                        |                                                    |                                     |
|                                          | 4.3 To increase water efficiency and increase resilience of Public Water Supply (PWS) and natural systems to droughts.                                                                  | <p>Will it increase efficiency in water use?</p> <p>Will it enable efficient water resource management and ensure maintenance of water supplies?</p>                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                        |                                                    |                                     |
| <b><i>Soil, geology and land use</i></b> | 5.1 To contribute to sustainable use of land and protect and enhance the functionality and quality of soils, including the protection of high-grade agricultural land and geodiversity. | <p>Will it protect, maintain and enhance soil function and health?</p> <p>Will it avoid damage to and protect geologically important sites?</p> <p>Will additional land be required for the development or implementation of the measure or will the option require below ground works leading to land sterilisation?</p> <p>Will it measure utilise previously developed land?</p> <p>Will it avoid damage to and/or minimise the loss of best and most versatile agricultural land?</p> <p>Will it preserve existing carbon stores and enhance them where feasible?</p> | <p>A prosperous Wales</p> <p>A resilient Wales</p> <p>A globally responsible Wales</p> | Concentration of carbon and organic matter in soil | Yes                                 |

| SEA Topic                                       | Proposed SEA Objective                                                                                                     | Proposed Indicator Questions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Welsh Government Well-being Goal(s)                                                             | Relevant National Well-being Indicators                                                                                                                                                                               | Relevant to the Objective for SMNR? |
|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| <b><i>Air and climate</i></b>                   | 6.1 To reduce and minimise air emissions.                                                                                  | Will it reduce or minimise air pollutant emissions?<br>Will it increase emissions to air in areas sensitive to emissions (e.g. in proximity to an AQMA or to sensitive habitat or more deprived area)?                                                                                                                                                                                                                                                                                                        | A prosperous Wales<br>A resilient Wales<br>A healthier Wales<br>A Wales of cohesive communities | Levels of nitrogen dioxide (NO <sub>2</sub> ) pollution in the air<br>Capacity (in MW) of renewable energy equipment installed                                                                                        | Yes                                 |
|                                                 | 6.2 To reduce carbon emissions and to adapt to future changes in climate.                                                  | Will it minimise the need for energy?<br>Will it increase efficiency in the use of energy?<br>Will it reduce or minimise greenhouse gas emissions?<br>Will it reduce vulnerability to risks associated with climate change effects (e.g. reduce the negative effects of droughts)?<br>Will it improve resilience/adaptability to likely effects of climate change, e.g. by increasing water storage capacity, or transferring water from areas with surplus?<br>Will it seek to improve or manage flood risk? | A globally responsible Wales                                                                    | Emissions of greenhouse gases attributed to the consumption of global goods and services in Wales<br>Emissions of greenhouse gases within Wales                                                                       |                                     |
| <b><i>Archaeology and cultural heritage</i></b> | 7.1 To conserve and enhance historic assets/cultural heritage and their setting, including archaeological important sites. | Will it avoid damage to and protect the historic environment, heritage assets and their settings, places and spaces that enhance local distinctiveness, landscape/townscape character and appearance?<br>Will it avoid damage to and protect archaeologically important sites?<br>Will it avoid damage to important wetland areas with potential for paleo-environmental deposits?                                                                                                                            | A prosperous Wales<br>A Wales of vibrant culture and thriving Welsh language                    | Percentage of designated historic environment assets that are in stable or improved conditions<br>Percentage of people attending or participating in arts, culture or heritage activities at least three times a year | Yes                                 |



| SEA Topic                           | Proposed SEA Objective                                                                                                         | Proposed Indicator Questions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Welsh Government Well-being Goal(s)                                                                                | Relevant National Well-being Indicators                                                                                                                                                                                                  | Relevant to the Objective for SMNR? |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| <b>Landscape and visual amenity</b> | 8.1 To conserve, protect and enhance landscape and townscape character, visual amenity and the setting of national landscapes. | <p>Is the measure likely to have significant visual impacts?</p> <p>Will it avoid negative effects on, and enhance where possible, the special qualities of protected/designated landscapes (including woodlands) or seascapes such as National Parks or National Landscapes?</p> <p>Will it help to protect and improve non-designated areas of natural beauty and distinctiveness (e.g. woodlands) and avoid the loss of landscape features and local distinctiveness?</p> <p>Will it avoid indirect effects on the landscape resulting from effects of abstraction and low river flows?</p> | <p>A resilient Wales</p> <p>A Wales of cohesive communities</p> <p>A healthier Wales</p> <p>A Prosperous Wales</p> | <p>Percentage of people satisfied with local area as a place to live</p> <p>Mean mental well-being score for people</p> <p>Percentage of people satisfied with their ability to get to/ access the facilities and services they need</p> | Yes                                 |

The draft Drought Plan options have been assessed based on the nature of the effect, the timing and geographic scale, the sensitivity of the human or environmental receptor that could be affected, and how long any effect might last. Assessment matrices have been used to capture the assessment of each measure in a consistent manner.

Specific guidance has been developed for what constitutes the significance of effect for each of the SEA objectives. These 'definitions of significance' help to ensure a consistent approach to interpreting the significance of effects and help the reader understand the decisions made by the assessor.

The SEA Regulations require that the cumulative effects of a plan or programme are considered. This includes the cumulative effects of the draft Drought Plan in combination with other plans and programmes and the cumulative effects of individual options within the draft Drought Plan, which in combination represent the proposed approach.

The results of the assessment have helped inform DCWW's selection of water management options to be taken forward into the final Drought Plan.

**Section 3 of the Environmental Report provides further information in relation to the approach to the assessment of the Drought Plan.**

**Section 4 presents the findings of the assessment of the draft Drought Plan.**

**The Criteria for Assessing Significance are contained in Appendix D, and detailed assessment matrices for each of the draft Drought Plan measures are presented in Appendix E.**

## HABITATS REGULATIONS ASSESSMENT

The Conservation of Habitats and Species Regulations 2017 (the 'Habitats Regulations') requires that competent authorities assess the potential impacts of plans and programmes on the national site network of protected sites<sup>1</sup> to determine whether there will be any 'likely significant effects' on any European site as a result of the plan's implementation (either on its own or 'in combination' with other plans or projects); and, if so, whether these effects will result in any adverse effects on the site's integrity. The process by which the impacts of a plan or programme are assessed against the conservation objectives of a European site is known as Habitats Regulations Assessment (HRA)<sup>2</sup>.

The NRW drought plan guidance<sup>3</sup> states that those responsible for preparing the drought plan "***must ensure that the drought plan meets the requirements of the Conservation of Habitats and Species Regulations 2017***" and "***must carry out a HRA to test if the plan could significantly harm the designated features of a European site alone or in-combination with other plans and projects***" (for example, the effects of drought management actions on European sites)".

In accordance with the Habitats Regulations, what is commonly referred to as a HRA screening exercise has been undertaken to identify whether DCWW's draft Drought Plan will have any likely significant effects on any European sites (either alone or 'in combination' with other projects or plans). Where the possibility of significant effects cannot be excluded, a more detailed Appropriate Assessment will be carried out to determine whether these effects would adversely affect the site's integrity.

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<sup>1</sup> Protected sites within the UK refer to existing designated Special Areas of Conservation (SACs) and Special Protected Areas (SPAs) and new SACs and SPAs designated under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 Regulations. Within this report, the term "European site" is used as a generic term for all of the above designated sites.

<sup>2</sup> 'Appropriate Assessment' has been historically used as an umbrella term to describe the process of assessment as a whole. The whole process is now more accurately termed 'Habitats Regulations Assessment' (HRA), and 'Appropriate Assessment' is used to indicate the specific stage of HRA.

<sup>3</sup> Natural Resources Wales (2024) *Water Company Drought Plan Technical Guidance*. Version 2.0. July 2024

The HRA has been undertaken and reported separately from the SEA. However, the conclusions of the HRA help to inform the assessment process, particularly with respect to the potential effects of the draft Drought Plan measures on biodiversity.

## THE POTENTIAL EFFECTS OF THE DRAFT DROUGHT PLAN OPTIONS

DCWW has 5 demand-side measures and 20 supply-side options that require either a drought permit or drought order. The demand-side measures are not geographically distinct and hence could be implemented in any of the WRZs in DCWW's area.

The 20 supply-side options are for 7 WRZs that are potentially vulnerable to severe drought. These WRZs are: North Eryri/Ynys Mon (NEYM), Llyn/Harlech/Barmouth, Clywd Coastal, SEWCUS, Tywi Gower CUS, North Ceredigion and Pembrokeshire.

The effects of each option were assessed during the construction and the operational phases. **Table NTS 1-3** and

Table NTS 1-4 below summarises the effects of the supply options during construction and operation.

No significant positive or negative construction effects have been identified during the assessment of the supply-side options.

The assessment of the supply-side options identified no significant positive or negative construction effects. Out of the 20 options, five—Options 8001-2 and 8001-7 in the North Eryri Ynys Mon (NEYM) WRZ, 8012-6 and 8012-1 in the Clwyd Coastal WRZ, and Option 8203-2 in North Ceredigion WRZ require minor construction activities related to the installation of pipelines and pumping infrastructure. All construction effects for these options were assessed as either minor or neutral.

All other construction effects were assessed as minor or neutral.

During operation, major positive effects were identified for the combination of the Llwyn-on and Pontsticill options in the SEWCUS WRZ (SEA Objectives 2.1, 2.2 and 4.3), primarily due to its higher yield of 7.42 Ml/d. Option 8206-1 Crowhill in the Pembrokeshire WRZ also has major positive effects on Population and Human Health (SEA Objectives 2.1 and 2.2) and Water (SEA Objective 4.3), with its significant yield of 7.25 Ml/d. Options 8012-1 Llyn Aled and 8012-4 Afon Aled also demonstrate major positive effects on Population and Human Health due to the additional deployable output they provide with 8012-4 also having a major positive effect on Water (SEA Objective 4.3). These yields will help secure public water supplies during drought conditions, supporting public health, well-being, and economic stability at both local and regional levels.

Major negative uncertain effects on biodiversity (SEA Objective 1.1) were identified for Options 8121-1 Llwyn-on and 8121-2 Pontsticill in the SEWCUS WRZ, due to potential impacts on the qualifying features of the Severn Estuary Ramsar and Severn Estuary/ Môr Hafren SAC. These effects remain uncertain until further data can confirm the scale and likelihood of the potential impacts. Additionally, major negative effects were identified for Option 8201-1(ii) Crai in the Tywi Gower WRZ, concerning potential impacts on the qualifying features of the River Usk/Afon Wysg SAC and River Usk Tributaries SSSI. Option 8012-6 Aled Isaf to Llyn Aled in the Clwyd WRZ was found to have major negative effects on Material Assets and Resource Use (SEA Objective 3.1) and Air and Climate (SEA Objective 6.2) due to the energy required to pump water against a 1 km gradient.

All other operational effects were assessed as moderate, minor or neutral.

Table NTS summarise the significant effects of the options.

While these options are presented together for ease of review, it should be noted that the measures would not necessarily all be implemented or would not necessarily be implemented in combination, even within a WRZ. The selection of the option or options to be implemented would be determined by a number of factors including the nature and intensity of the drought, operational requirements, and also on the potential environmental impacts of the option in question.

**Table NTS 1-3** below summarises the effects of the demand options during construction and operation.

No significant positive or negative effects have been identified during the construction phase. Of the five demand options, only Option DM1 involves construction activities to reduce leakage, which typically require excavation, repairs, and site restoration. Given the scale and nature of these activities, the effects are expected to be minor to neutral across the SEA Objectives.

During operation, significant negative effects were identified for Option DM5 (Extreme Measures) on health and well-being (SEA Objective 2.1). Disruptions to the water supply and intermittent provision could cause considerable stress and anxiety, negatively affecting human health and quality of life.

Significant negative effects were also identified on the economic and social needs of the local community (SEA Objective 2.2). Non-Essential Use Bans under Option DM4 and water rationing under Option DM5 (Extreme Measures) could severely affect local businesses, particularly those reliant on water, leading to operational suspensions, financial losses, and broader repercussions for community well-being and economic stability.

All other operational effects were assessed as moderate, minor or neutral.

Table NTS 1-3: Effects of the draft Drought Plan Demand - Side options

| Ref | Option Name                                                   | Negative (N) or Positive (P) | SEA Topics and Objectives |     |                             |      |                                  |       |     |     |                            |                 |     |                                   |                              |
|-----|---------------------------------------------------------------|------------------------------|---------------------------|-----|-----------------------------|------|----------------------------------|-------|-----|-----|----------------------------|-----------------|-----|-----------------------------------|------------------------------|
|     |                                                               |                              | Biodiversity              |     | Population and Human Health |      | Material Assets and Resource Use | Water |     |     | Soil, Geology and Land Use | Air and Climate |     | Archaeology and Cultural Heritage | Landscape and Visual Amenity |
|     |                                                               |                              | 1.1                       | 1.2 | 2.1                         | 2.2  | 3.1                              | 4.1   | 4.2 | 4.3 | 5.1                        | 6.1             | 6.2 | 7.1                               | 8.1                          |
| DM1 | Leakage Management                                            | N                            | 0/?                       | N/A | 0                           | 0    | -/?                              | 0     | 0   | 0   | 0                          | -               | -/? | 0                                 | 0                            |
|     |                                                               | P                            | 0                         | N/A | +                           | 0    | +/?                              | +     | 0   | +   | 0/?                        | N/A             | +/? | N/A                               | N/A                          |
| DM2 | Water Efficiency – customer messaging and device offering     | N                            | N/A                       | N/A | 0                           | 0    | 0                                | 0     | 0   | 0   | 0                          | -               | 0   | N/A                               | N/A                          |
|     |                                                               | P                            | +                         | N/A | +                           | 0    | +/?                              | +     | +   | +   | 0                          | 0               | +/? | 0/?                               | 0                            |
| DM3 | Temporary Use Bans (TUBs)                                     | N                            | N/A                       | N/A | N/A                         | --/? | N/A                              | N/A   | N/A | N/A | N/A                        | N/A             | N/A | 0                                 | 0                            |
|     |                                                               | P                            | +                         | N/A | +                           | N/A  | +/?                              | +     | +   | +   | 0                          | N/A             | +   | 0                                 | 0/?                          |
| DM4 | Non Essential Use Bans (NEUBs)                                | N                            | N/A                       | N/A | N/A                         | ---  | N/A                              | N/A   | N/A | 0   | N/A                        | N/A             | N/A | 0                                 | 0                            |
|     |                                                               | P                            | +                         | N/A | ++                          | 0    | +/?                              | +     | +   | +   | 0                          | N/A             | +   | 0                                 | 0                            |
| DM5 | Extreme measures e.g. pressure management and water rationing | N                            | 0/?                       | N/A | ---                         | ---  | -/?                              | N/A   | N/A | N/A | 0                          | -               | -   | 0                                 | 0                            |
|     |                                                               | P                            | +                         | N/A | ++                          | N/A  | +/?                              | +/?   | +   | +   | 0                          | N/A             | +/? | 0                                 | 0                            |

**Table NTS 1-4** below summarises the effects of the supply options during construction and operation.

No significant positive or negative construction effects have been identified during the assessment of the supply-side options.

The assessment of the supply-side options identified no significant positive or negative construction effects. Out of the 20 options, five—Options 8001-2 and 8001-7 in the North Eryri Ynys Mon (NEYM) WRZ, 8012-6 and 8012-1 in the Clwyd Coastal WRZ, and Option 8203-2 in North Ceredigion WRZ require minor construction activities related to the installation of pipelines and pumping infrastructure. All construction effects for these options were assessed as either minor or neutral.

All other construction effects were assessed as minor or neutral.

During operation, major positive effects were identified for the combination of the Llwyn-on and Pontsticill options in the SEWCUS WRZ (SEA Objectives 2.1, 2.2 and 4.3), primarily due to its higher yield of 7.42 Ml/d. Option 8206-1 Crowhill in the Pembrokeshire WRZ also has major positive effects on Population and Human Health (SEA Objectives 2.1 and 2.2) and Water (SEA Objective 4.3), with its significant yield of 7.25 Ml/d. Options 8012-1 Llyn Aled and 8012-4 Afon Aled also demonstrate major positive effects on Population and Human Health due to the additional deployable output they provide with 8012-4 also having a major positive effect on Water (SEA Objective 4.3). These yields will help secure public water supplies during drought conditions, supporting public health, well-being, and economic stability at both local and regional levels.

Major negative uncertain effects on biodiversity (SEA Objective 1.1) were identified for Options 8121-1 Llwyn-on and 8121-2 Pontsticill in the SEWCUS WRZ, due to potential impacts on the qualifying features of the Severn Estuary Ramsar and Severn Estuary/ Môr Hafren SAC. These effects remain uncertain until further data can confirm the scale and likelihood of the potential impacts. Additionally, major negative effects were identified for Option 8201-1(ii) Crai in the Tywi Gower WRZ, concerning potential impacts on the qualifying features of the River Usk/Afon Wysg SAC and River Usk Tributaries SSSI. Option 8012-6 Aled Isaf to Llyn Aled in the Clwyd WRZ was found to have major negative effects on Material Assets and Resource Use (SEA Objective 3.1) and Air and Climate (SEA Objective 6.2) due to the energy required to pump water against a 1 km gradient.

All other operational effects were assessed as moderate, minor or neutral.



Table NTS 1-4: Effects of the draft Drought Plan Supply-side options

| Ref         | Option Name         | Negative (N) or Positive (P) | SEA Topics and Objectives |     |                             |     |                                  |       |      |     |                            |                 |     |                                   |                              |
|-------------|---------------------|------------------------------|---------------------------|-----|-----------------------------|-----|----------------------------------|-------|------|-----|----------------------------|-----------------|-----|-----------------------------------|------------------------------|
|             |                     |                              | Biodiversity              |     | Population and Human Health |     | Material Assets and Resource Use | Water |      |     | Soil, Geology and Land Use | Air and Climate |     | Archaeology and Cultural Heritage | Landscape and Visual Amenity |
|             |                     |                              | 1.1                       | 1.2 | 2.1                         | 2.2 | 3.1                              | 4.1   | 4.2  | 4.3 | 5.1                        | 6.1             | 6.2 | 7.1                               | 8.1                          |
| 8001-2      | Llyn Cwellyn        | N                            | -                         | 0   | 0                           | -   | -                                | 0     | 0    | N/A | 0                          | -               | -   | 0                                 | -                            |
|             |                     | P                            | 0                         | N/A | ++                          | ++  | N/A                              | N/A   | N/A  | +   | N/A                        | N/A             | +   | N/A                               | N/A                          |
| 8001-7      | Llyn Cwellyn        | N                            | -                         | 0   | 0                           | -   | -                                | 0     | 0    | N/A | 0                          | -               | -   | 0                                 | -                            |
|             |                     | P                            | 0                         | N/A | ++                          | ++  | N/A                              | N/A   | N/A  | +   | N/A                        | N/A             | +   | N/A                               | N/A                          |
| 8001-4      | Ffynnon Llugwy      | N                            | --/?                      | N/A | 0                           | 0   | 0                                | -/?   | --   | N/A | 0                          | 0               | 0   | 0                                 | -                            |
|             |                     | P                            | 0                         | N/A | +                           | +   | +                                | N/A   | +    | +   | N/A                        | N/A             | +   | 0                                 | +                            |
| 8033-34 - 2 | Llyn Bodlyn         | N                            | --/?                      | N/A | 0                           | 0   | N/A                              | 0/?   | --/? | N/A | 0                          | 0               | 0   | 0                                 | -                            |
|             |                     | P                            | N/A                       | N/A | +                           | +   | +                                | N/A   | +    | +   | N/A                        | N/A             | +   | N/A                               | 0                            |
| 8033-34-1   | Llyn Cwmystadrlllyn | N                            | --/?                      | N/A | 0                           | N/A | N/A                              | 0/?   | --/? | N/A | 0                          | 0               | 0   | 0                                 | -                            |
|             |                     | P                            | N/A                       | N/A | +                           | +   | +                                | N/A   | +    | +   | N/A                        | N/A             | +   | N/A                               | 0                            |

|            |                               |   |       |     |     |     |       |     |      |     |     |     |       |     |     |
|------------|-------------------------------|---|-------|-----|-----|-----|-------|-----|------|-----|-----|-----|-------|-----|-----|
| 8033-34-4  | Llyn Cwmystadrlllyn           | N | 0/?   | N/A | 0   | N/A | 0     | 0   | 0    | N/A | 0   | 0   | 0/?   | 0   | 0   |
|            |                               | P | +/?   | N/A | +   | +   | +     | +   | +    | +   | N/A | N/A | +     | N/A | +   |
| 8012-2     | 8012-2 Aled Isaf              | N | --    | N/A | 0   | -/? | N/A   | 0/? | --/? | N/A | 0   | 0   | 0     | 0   | 0   |
|            |                               | P | N/A   | N/A | +   | +   | +     | N/A | +    | +   | N/A | N/A | +     | N/A | 0   |
| 8012-4     | 8012-4 Afon Aled              | N | 0     | N/A | 0   | 0   | -     | 0   | 0    | N/A | 0   | 0   | --/?  | 0   | 0   |
|            |                               | P | +     | N/A | +++ | +++ | +     | N/A | +    | ++  | N/A | N/A | +     | N/A | 0   |
| 8012-6     | 8012-6 Aled Isaf to Llyn Aled | N | -     | 0   | 0   | 0   | ---/? | 0   | 0    | N/A | 0   | -/? | ---/? | N/A | -/? |
|            |                               | P | N/A   | N/A | 0   | 0   | N/A   | N/A | +    | +   | 0   | N/A | N/A   | N/A | N/A |
| 8012-1     | 8012-1 Llyn Aled              | N | -     | 0   | 0   | 0   | -/?   | 0   | 0    | N/A | 0   | -/? | -/?   | N/A | -/? |
|            |                               | P | N/A   | N/A | +++ | +++ | N/A   | N/A | +    | +++ | 0   | N/A | N/A   | N/A | N/A |
| 8121-1     | Llwyn-on                      | N | ---/? | N/A | 0   | 0   | 0     | -/? | --   | N/A | 0   | 0   | 0     | 0   | -   |
|            |                               | P | N/A   | N/A | ++  | ++  | +     | N/A | +    | ++  | N/A | N/A | +     | 0   | 0   |
| 8121-2     | Pontsticill                   | N | ---/? | N/A | 0   | 0   | 0     | -/? | --   | N/A | 0   | 0   | 0     | -/? | -   |
|            |                               | P | N/A   | N/A | ++  | ++  | +     | N/A | +    | ++  | N/A | N/A | +     | 0   | 0   |
| 8121-3     | Shon Sheffrey                 | N | -/?   | N/A | 0   | 0   | 0     | -   | --   | N/A | 0   | 0   | 0     | 0   | 0   |
|            |                               | P | N/A   | N/A | +   | +   | +     | N/A | +    | ++  | 0   | N/A | +     | N/A | 0   |
| 8121-4     | Grwyne Reservoir              | N | 0     | 0   | N/A | N/A | 0     | 0   | -    | N/A | 0   | 0   | 0     | 0   | -   |
|            |                               | P | +     | N/A | ++  | ++  | +     | 0   | +    | +   | 0   | N/A | +     | 0   | +   |
| 8201-1(ii) | Crai                          | N | ---/? | N/A | N/A | 0   | 0     | 0   | --   | N/A | 0   | 0   | 0     | 0   | -   |

|            |                      |   |      |     |     |     |     |     |     |     |     |     |     |     |     |
|------------|----------------------|---|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|            |                      | P | N/A  | N/A | +   | +   | 0   | N/A | N/A | +   | 0   | N/A | +   | N/A | 0   |
| 8201-2(ii) | Ystradfellte         | N | --/? | N/A | 0   | -   | 0   | -/? | --  | N/A | 0   | 0   | 0   | 0   | 0   |
|            |                      | P | N/A  | N/A | +   | +   | +   | N/A | +   | +   | N/A | N/A | +   | N/A | 0   |
| 8203-2     | Nantymoch            | N | 0    | 0   | 0   | 0   | -   | 0   | 0   | 0   | 0   | -   | -   | 0   | -   |
|            |                      | P | N/A  | N/A | ++  | ++  | N/A | N/A | N/A | ++  | N/A | N/A | +   | N/A | N/A |
| 8203-3     | Llyn Craig Y Pistyll | N | --   | N/A | 0   | 0   | 0   | 0   | --  | N/A | 0   | 0   | 0   | 0   | 0   |
|            |                      | P | N/A  | N/A | +   | +   | 0   | 0   | +   | +   | N/A | N/A | +   | N/A | 0   |
| 8206-1     | Crowhill             | N | --   | N/A | 0   | 0   | 0   | -   | --  | N/A | 0   | 0   | 0   | 0   | 0   |
|            |                      | P | N/A  | N/A | +++ | +++ | +   | 0   | N/A | +++ | N/A | N/A | +   | N/A | N/A |
| 8206-7     | Llys y Fran          | N | 0    | N/A | 0   | 0   | 0   | 0   | 0   | N/A | 0   | 0   | 0/? | 0   | 0   |
|            |                      | P | 0    | N/A | +   | +   | +   | +   | +   | +   | N/A | N/A | +   | N/A | 0   |

## SUMMARY OF THE POTENTIAL EFFECTS OF THE DRAFT DROUGHT PLAN OPTIONS

The demand-side options have been assessed as generally having a smaller range of effects against the SEA objectives that comprise the assessment framework when compared to the supply-side options. This is because these options seek to reduce the demand for water from existing resources and do not result in any temporary increases in abstraction. There is potential for significant negative effects relating to the potential disruption caused by temporary and non-essential use bans in addition to the more extreme demand measures. These options would negatively impact the economic and social needs of the communities and businesses within the DCWW supply area.

In contrast to the demand-side options, there is a greater likelihood of significant effects arising from the construction and operation of supply-side options. A number of supply-side options will require additional temporary infrastructure to be constructed (temporary pumps, generators and above ground pipelines). Construction activities could lead to disturbance of habitat, effects on water quantity or quality and can lead to disturbance of local residents and communities (e.g. noise and vibration). The presence of new above ground infrastructure can also lead to effects on landscape, especially in sensitive locations such as National Landscapes and National Parks, although such effects will be localised, transient and reversible. Environmental effects are potentially greater where there are sensitive receptors that may be affected during construction (e.g. sites designated for nature conservation or landscape designations). The majority of options, however, do not require additional infrastructure and therefore have no effects during construction. These include options to reduce compensation flow from reservoirs and other options that utilise existing sources.

During operation, there is considerable variation in the significance of effects of the supply-side options. In general, options that generate larger yields have significant benefits (in terms of human health and socioeconomic wellbeing); however, they may also be associated with significant negative effects (in terms of effects on designated nature conservation sites (e.g. SACs and SSSIs) and fish species in particular. Options that require a reduction in compensation flows or temporary increases in abstraction could also have significant effects on water quantity and quality (where downstream flows are affected). Options that result in the temporary pumping of water over a kilometre or further, against the gradient, will require substantial quantities of energy and resources. All options will increase resilience to climate change.

There are a number of supply-side options that have been identified as having minor or neutral effects against the SEA objectives during operation. These options include those that make minor changes to existing abstraction licences.

**Further assessment detail is contained within Section 4 of the Environmental Report and within the individual matrices included in Appendix E.**

## THE POTENTIAL CUMULATIVE EFFECTS

The potential for the draft Drought Plan options to be implemented in-combination depends on several factors, including the nature, location, and timing of each option, the number of options applied within a WRZ or across the broader supply area, and how these options interact with other plans or programmes. The effects also depend on the sensitivity of the receptors to each option, both alone and in-combination.

In principle, the options outlined in the draft Drought Plan are not necessarily intended to be implemented together. The options proposed within each WRZ may be applied individually or, in some cases, together. For example, in the North Eryri Ynys Môn WRZ, three equally feasible options are identified but they may not be implemented simultaneously. The selection of which options to apply will depend on factors such as drought severity, operational needs, and the potential environmental impacts of each option, as informed by the SEA and HRA of the Drought Plan. Additionally, some options are mutually exclusive and cannot be implemented together.

As a result, the cumulative effects of the draft Drought Plan options are not necessarily additive. This distinguishes the Drought Plan from other plans, such as the WRMP, where multiple 'preferred' options are typically selected for each WRZ. Therefore, it may be misleading to assess specific combinations of options within a WRZ or across the supply area when attempting to quantify their cumulative effects.

The following conclusions were made after review of potential cumulative effects for the draft Drought Plan:

- Two options were identified as having cumulative effects within one WRZ (SEWCUS) and found to affect the same water body (Afon Taf). There is potential for significant cumulative effects between these options and this effect has been assessed through a separate option.
- No cumulative effects are anticipated between WRZs as the drought options do not impact on the same waterbodies or designated sites.
- No cumulative effects are anticipated with DCWW's revised draft WRMP24
- No cumulative effects are anticipated with neighbouring water company WRMPs
- There is potential for cumulative effects with Severn Trent Water's Drought Plan 2022. The DCWW draft Drought Plan has identified potential impacts to the Severn Estuary Ramsar and Severn Estuary/ Môr Hafren SAC through impacts to migratory salmon potentially using the Afon Taff as a migratory corridor and for juvenile habitat, for the Llwyn-on (8121-1) and Ponsticill (8121-2) drought options. In the absence of data for this species in these reaches, on a precautionary basis, an adverse effect on integrity has been concluded in the HRA. Given the levels on uncertainty for the assessment alone, the potential for in-combination impacts is also uncertain. Until further data is collected and the scale of the potential impact from the drought options better understood, we must conclude adverse effect on integrity in combination with other schemes.
- No cumulative effects are anticipated with other plans or major projects due to the timing of operation outside of the planning period for the draft Drought Plan

**Section 4.10 of the Environmental Report contains further detail on secondary, cumulative and synergistic effects.**

## CONTRIBUTION OF THE DRAFT DROUGHT PLAN TO WALES' WELL-BEING GOALS AND THE OBJECTIVE FOR SMNR

In addition to considering the effects of the draft Drought Plan on the SEA objectives, an assessment has been undertaken of the contribution that the Plan is likely to make to the achievement of the well-being goals established in the Well-being of Future Generations (Wales) Act 2015 and the objective for the SMNR set out in the Environment (Wales) Act 2016.

The assessment demonstrates that the draft Drought Plan is likely to support the achievement of the majority of the well-being goals for Wales. This principally reflects the objective of the Plan and its associated measures to ensure the continuity of drinking water supplies to DCWW's customers during periods of drought.

The construction (where applicable) and operation of many of the draft Drought Plan options will unavoidably require the use of natural resources and generate greenhouse gas emissions and could also result in negative environmental effects, particularly during operation. However, it should be recognised that through the implementation of the proposed options, the draft Drought Plan will ensure the continued supply of potable water whilst minimising any detrimental effects on the environment. This will help protect and enhance the environment and promote the efficient use of water resources, making a long-term contribution to the well-being goals for Wales and the objective for SMNR.

## MITIGATION MEASURES

Where negative effects during construction or operation of proposed Drought Plan options have been identified, there is the opportunity to reduce some of these potential negative effects through the use of mitigation measures. Potential mitigation measures are included within each of the assessment matrices in Appendix E of the Environmental Report although these should be considered as a starting point for more detailed consideration as options are planned and developed.

Examples include:

- The adoption of best practice construction techniques (such as the use of sediment traps) in order to minimise or avoid the effects of construction on designated sites.
- Measures to minimise impacts of fish and other species such as the targeted installation of woody debris features to provide fish with the habitat required to support feeding and development (growth), gravel washing of spawning areas, deployment of aeration equipment and re-stocking following drought.
- River flow and water quality monitoring during the implementation of supply-side measures.

- The rental or re-use of onsite equipment in order to minimise resource use.

The detail of this mitigation will reflect the nature of each proposed Drought Plan measure (and the anticipated effects) and will need to be considered during the planning phases of each of the Drought Plan measures if and when they are taken forward for implementation.

**Section 4.14 of the Environmental Report presents further detail on mitigation and enhancement measures.**

## USING THE FINDINGS OF THE ASSESSMENT

The assessments have helped to highlight the range of potential environmental effects associated with the draft Drought Plan, including those that had been quantified and those that could only be identified qualitatively. The assessments outlined in this report highlighted where there are potential significant negative and positive effects of the draft Drought Plan, in addition to more minor effects.

Furthermore, the assessments have helped to identify how some of the potential negative effects can be mitigated and positive effects enhanced.

## HOW TO COMMENT ON THE REPORT

The consultation bodies, as well as the public, are invited to express their views on this Environmental Report and use it as a reference point to express their views on the draft Drought Plan.

Comments should be sent to [water.resources@dwrcymru.com](mailto:water.resources@dwrcymru.com)

## WHAT ARE THE NEXT STEPS IN THE SEA PROCESS?

Following consultation, DCWW will prepare a Statement of Response to the representations received, setting out how the draft Drought Plan has been revised to take account of the consultation responses. DCWW will amend the draft Drought Plan accordingly and revise the Environmental Report to reflect these changes. The revised documentation will be sent to the Welsh Government for confirmation that all representations have been appropriately accounted for.

Following further direction from the Welsh Government, DCWW will publish the final Drought Plan and implement it accordingly. In conjunction with publishing the final Drought Plan, DCWW will also issue a Post Adoption Statement. This will set out the results of the consultation and SEA process and the extent to which the findings of the SEA have been accommodated in the published Drought Plan.

As the plan is implemented, DCWW will monitor effects on the environment through existing processes, helping to ensure that the potential effects identified in the SEA are considered in practice.

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# INTRODUCTION

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## 1.1 BACKGROUND AND PURPOSE OF REPORT

Dŵr Cymru Welsh Water (DCWW) published its current Drought Plan in February 2021 (the 'Final Drought Plan 2020'). As required by the Welsh Government through the Drought Plan (Wales) Direction 2017, DCWW is currently preparing its next Drought Plan 2025. The Drought Plan will detail how DCWW intends to respond to drought conditions, ensuring the continued supply of water to its customers when water resources are depleted whilst minimising any detrimental effects on the environment. It has been determined that Strategic Environmental Assessment (SEA) and Habitat Regulations Assessment (HRA) of the Drought Plan are required (see **Section 1.2.3**).

DCWW has appointed Ricardo to undertake a SEA of the draft Drought Plan. SEA is a statutory requirement for plans or programmes which could have significant environmental implications, and helps to identify where there are potential effects, and how negative effects might be mitigated. The Welsh Government Drought Plan Guiding Principles<sup>4</sup> and the Natural Resources Wales (NRW) Water company drought plan – technical guidance<sup>5</sup> state that those responsible for preparing the drought plan should carry out a SEA as part of the range of assessments required to inform the development of the plan.

The SEA assesses the likely significant environmental effects of the Drought Plan and identifies ways in which negative effects can be avoided, minimised or mitigated and how any positive effects can be enhanced. The SEA has been carried out in tandem to inform the choice of options that comprise the Drought Plan.

## 1.2 DCWW'S WATER SUPPLY SYSTEM AND DROUGHT PLANNING

### 1.2.1 Introduction

DCWW provides water services to some 3 million customers in much of Wales and small parts of Cheshire and Herefordshire in England. It also has over 100,000 business customers and in total delivers more than 850 million litres of drinking water every day, which can increase by up to 20% during a hot summer. DCWW supplies come primarily from surface water resources such as rivers and reservoirs (95% of its total resources); groundwater sources constitute the remaining water resources, reflecting the geology of Wales which is unsuitable for supporting large scale groundwater supplies.

### 1.2.2 DCWW's Water Resource Zones

For operational purposes, DCWW divides its water supply area into three regions; North Wales, South West Wales and South East Wales. However, for water resources planning purposes, these regions are further subdivided into Water Resource Zones (WRZ). A WRZ is defined by the extent of the supply network that share the water resources within each zone, whereby the customers in each zone have the same level of service in response to drought conditions. **Figure 0-1** shows DCWW's 23 WRZs within these three regions. Please note the Tywi Gower CUS WRZ presented in the figure is also referred to as Twyi Gower Conjunctive Use System (CUS) WRZ in this report.

---

<sup>4</sup> Welsh Government (2024) The Welsh Government Guiding Principles for Developing Water Undertaker Drought Plans for 2025. Draft.

<sup>5</sup>NRW (2024) Water company drought plan, technical guidance. Available at <https://naturalresources.wales/media/4hihubjr/water-company-drought-plan-technical-guidance.pdf>

Figure 0-1 DCWW's Water Resource Zones



Using the information produced for its 2024 Water Resource Management Plan (WRMP24) DCWW has improved its understanding of the vulnerability of its WRZs to drought, particularly those more extreme droughts than it has historically experienced. Using this analysis of drought vulnerability, the first stage of developing the Drought Plan was to define the hydrological indicators for identifying and measuring the onset of drought in each WRZ: rainfall, reservoir storage levels, river flows and levels of demand.

Drought triggers have then been developed to identify when specific drought actions to reduce demand and, if necessary, obtain additional water resource may need to be implemented (i.e. when the water resource situation is moving into a drought). These triggers, which are decision making tools as part of an overall drought management framework, are used to categorise a drought into one of six stages in each of the 23 WRZs that make up DCWW's area. The stages are shown in **Table 0-1**.

Table 0-1 DCWW Drought Stages

| Stage   | DCWW Drought Stage          |
|---------|-----------------------------|
| Stage 1 | Normal operating conditions |
| Stage 2 | Developing drought          |
| Stage 3 | Drought                     |
| Stage 4 | Severe drought              |
| Stage 5 | Emergency Storage           |
| Stage 6 | End of drought              |

For each stage, there are a range of drought management actions that can be implemented to ensure the continued supply of potable water. These types of actions are divided into two broad categories; demand-side measures and supply-side measures and examples considered during Drought Plan development are provided in **Table 0-2** and **Table 0-3** respectively. **The Drought Plan 2025 draft demand and supply measures are presented in Section 4.**

Demand-side measures are designed to reduce the demand for water during drought; supply-side measures relate to actions that can temporarily increase the amount of water available for supply during drought. **It should be noted that the terms 'measures' and 'options' are used interchangeably in this report to describe the draft Drought Plan actions.**

Table 0-2 Description of example Demand-Side Measures

| Demand Side Option                                | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Increased water leakage control activities</b> | <p>This option type involves increasing leakage reduction activity to reduce losses from the water supply network during a drought. Two types of leakage reduction would be undertaken:</p> <ul style="list-style-type: none"> <li>• <b>Active Leakage Control</b> – this would involve increasing the number of leakage technicians within each WRZ where this option is implemented. Increasing the number of leakage technicians would enable leaks to be located and fixed more promptly than is the case with fewer resources.</li> <li>• <b>Pressure Management</b> – Pressure management involves proactively managing pressure within the distribution network to reduce leakage.</li> </ul> <p>The scale of the works depends on the size of the WRZ and the level of leakage within each zone. It is also dependent on the effectiveness of works to locate and fix leakage.</p> |
| <b>Water Efficiency</b>                           | <p>This option type involves an increased level of targeted water efficiency messaging to customers and appeals for voluntary restraint on water use. Alongside this, DCWW may also distribute simple retrofit devices (e.g. cistern devices, showerheads etc.). The implementation of this option would be accompanied by a media campaign.</p> <p>No construction would arise from the implementation of this option.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

| Demand Side Option               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temporary Water Use Restrictions | <b>Temporary Use Ban</b><br>A temporary ban on certain prescribed water uses, including watering of gardens and cleaning a car by means of a hosepipe. This can be implemented by DCWW using its statutory powers as prescribed under the Water Use (Temporary Bans) Order 2010 following a period of advertising of the proposals in, for example, local newspapers and social media platforms.                                                                                                                                                       |
|                                  | <b>Drought Order</b> to restrict further non-essential water uses.<br>A Drought Order application must be made to the Welsh Ministers/Secretary of State, if DCWW needs to temporarily restrict a further range of prescribed non-essential water uses by non-household customers. The Drought Order application must be advertised in advance and the Welsh Ministers/Secretary of State may direct that a local public hearing is held to consider any objections raised to the proposed restrictions before reaching a decision on the application. |
|                                  | No construction would arise from the implementation of this option.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

Table 0-3 Description of example Supply-Side Measures

| Supply-Side Measures                                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Re-commissioning of unused sources</b>                    | Re-commission a water source that has not been in regular use for a number of years.                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Water distribution network modifications</b>              | Modifications to the water distribution network to move water from areas of relative water supply surplus to areas where a supply deficiency is more likely to arise.                                                                                                                                                                                                                                                                                                                                               |
| <b>Review options for inter-company bulk water transfers</b> | Review terms and conditions of water company bulk supply imports/export agreements in consultation with neighbouring water companies to assess possible temporary changes to bring more water into the supply area or reduce the volume exported out of a supply area.                                                                                                                                                                                                                                              |
| <b>Drought Orders and Drought Permits</b>                    | Applications to Regulators and/or Government allowing temporary modifications to existing abstraction licence conditions or to enable water to be taken from alternative sources.<br>Drought Orders and Drought Permits are subject to statutory procedures, and may only be granted for specific periods and, subject to limited further renewal. Drought Orders and Drought Permits require environmental monitoring and may require mitigation measures to be in place to address any potential adverse effects. |

DCWW implements an ongoing programme of water efficiency and leakage reduction at all times. At times of drought there would be a step-change in the level of water efficiency and leakage reduction activity across the affected areas.

The development of DCWW's Drought Plan 2025 has identified the need for supply-side measures in the following WRZs:- North Eryri Ynys Mon (NEYM); Barmouth / Llyn Harlech; Clwyd Coastal; SEWCUS; Tywi Gower CUS; North Ceredigion; and Pembrokeshire. The other WRZs are considered sufficiently resilient to drought so that they do not require any supply-side measures to be included in the drought plan.

### 1.2.3 Requirement for SEA and HRA of DCWW's Drought Plan

The final NRW drought plan guidance<sup>6</sup> (published July 2024) states that screening should be undertaken of drought plans to determine if all the stages of a SEA are required. In consequence, the flow diagram in the ODPM SEA Practical Guide<sup>7</sup>, as adapted for the UKWIR guidance, was applied to DCWW's Drought Plan and

<sup>6</sup> Natural Resources Wales (2024) Water Company Drought Plan Technical Guidance. Version 2.0. July 2024

<sup>7</sup> Office of the Deputy Prime Minister (2005) *A Practical Guide to the Strategic Environmental Assessment Directive*

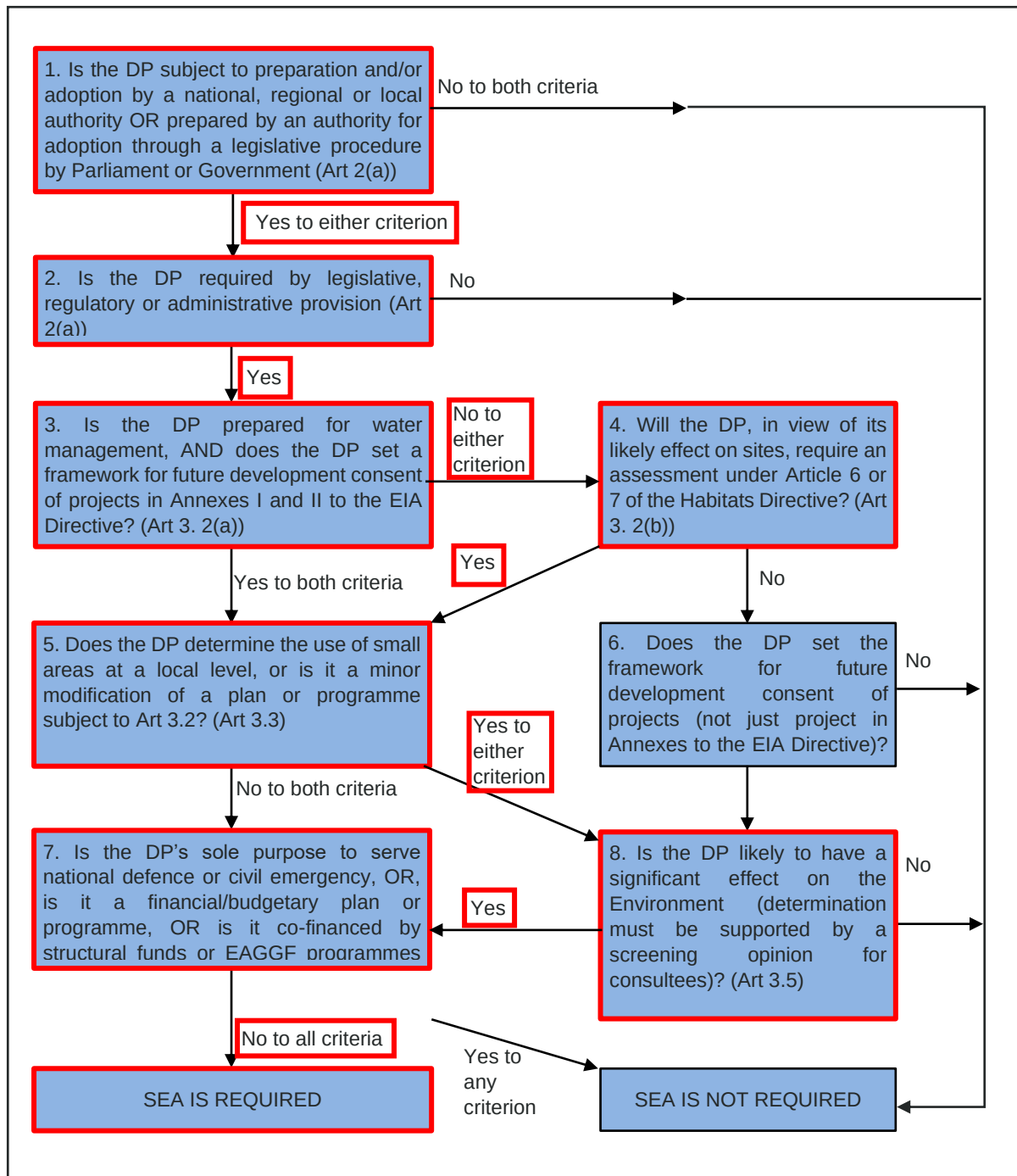
is presented in **Figure 0-2** with the boxes and arrows highlighted describing the provisions and route through the flow chart that is applicable to the Drought Plan; which demonstrates that the Drought Plan requires an SEA.

The requirement for SEA of the Drought Plan is primarily due to the potential 'significant effects' of measures within the plan on sites designated under the Habitats Regulations, based on the findings of the Drought Plan 2020 and the likelihood of the same or similar options being proposed for this iteration of the Drought Plan. It is also considered that the options proposed within the Drought Plan could have a range of potentially significant effects on people and the wider biodiversity from changes in river flows and groundwater levels.

### 1.3 DROUGHT PERMIT/ORDER ENVIRONMENTAL STUDIES

In accordance with legislation and associated drought plan guidance published by the Welsh Government and NRW, each supply-side measure which requires a drought permit or order is subject to detailed environmental assessment with the findings presented in a series of Environmental Assessment Reports (EARs) that accompany the Drought Plan. The information for drought permits and orders included in a drought plan is to be 'as close' to application ready as possible, especially for those sites that are identified as most likely to be required in a drought. The findings of these assessments have informed the SEA of the draft Drought Plan which have guided the development of the plan.

Figure 0-2 SEA screening route of DCWW's Drought Plan



## 1.4 STRATEGIC ENVIRONMENTAL ASSESSMENT

### 1.4.1 Overview of Strategic Environmental Assessment

SEA became a statutory requirement following the adoption of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment. In Wales, this was transposed into legislation on 12 July 2004 as Statutory Instrument 2004 No. 1656 – The Environmental Assessment of Plans and Programmes (Wales) Regulations 2004. These apply to plans and programmes whose effects are wholly within Wales; however, if plans or programmes could affect more than one country in the UK, then The Environmental Assessment of Plans and Programmes Regulations 2004 (Statutory Instrument 2004 No.1633) would apply (the SEA Regulations).

The SEA Regulations require preparation of an Environmental Report in which the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and geographical scope of the plan or programme, are identified, described and evaluated. If any negative effects are identified, these options can then be avoided or modified to manage or mitigate any negative effects. The range of issues to be included in an SEA is set out in the regulations, and includes biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage, and landscape.

SEA is usually focused mainly on environmental effects. However, it is current best practice within the water industry to examine the broader social effects of water resource management planning, in addition to the environmental effects. As such, the full range of environmental and social effects which are likely to arise from implementation of DCWW's Drought Plan 2025 have been considered.

### 1.4.2 Applying Strategic Environmental Assessment to Drought Planning

The water industry has now experienced delivering SEAs in multiple rounds of Water Resource Management Plans (WRMPs). These SEAs consider a wide range of possible water resource options (and programmes of options) to inform the delivery of a predictable and precise output; a WRMP that defines a preferred programme of water resource options, including the proposed timing of their implementation. Combining the effects of the individual measures serves to predict an overall cumulative environmental effect for the whole plan.

Drought Plans are different as they encompass a basket of measures that will only be implemented if and when required because of the unpredictable occurrence of a drought event, and thus the actual impact of the plan over its life is subject to very significant uncertainties. There may or may not be a drought during the period of the plan, and each drought is different in terms of severity, season, location, duration and influence of other abstractors within the catchment. Each combination of these factors may require a bespoke reaction in terms of measures.

A Drought Plan does not comprise a discrete, well defined programme of options selected from a long list of potential options, in the same way that a WRMP does. Because of the nature of the consenting system for drought actions, it must include all measures that the company may need to take progressively as the severity of a drought increases, including those that would only be needed in the worst possible drought, perhaps once every 100 years or more. These will typically have very significant environmental effects but are extremely unlikely to be required in the period of the plan.

The Drought Plan therefore includes a range of possible measures to allow DCWW to respond to a drought in the most appropriate way. It is difficult to fully predict in advance which and how many of the measures will be required, and in which order of priority, to respond to each particular drought event (although it is noted that for some resource zones with fewer drought options, it may be easier to predict which measures would be implemented in a drought scenario).

The traditional approach to SEA is therefore difficult to apply to Drought Plans. There are no pre-defined programmes of options as such, so the SEA will not be assessing competing measures or recommending the most sustainable selection or programme of measures. It cannot provide a certain prediction of an overall environmental effect of adopting the plan, as its implementation is uncertain. The outputs of the SEA will provide a comparative assessment of the environmental effects of implementing each drought option, which can be used by DCWW to advise the bespoke measures to be implemented at the time of an actual drought event and be used to inform the preferred order of the implementation according to its risk.

While an environmental assessment of each measure can be set out in the SEA, the lack of predictability of which measures will be implemented in any particular drought event means that it may be impossible to provide



an accurate cumulative assessment of the impacts of the plan for a possible future drought event. The approach to cumulative assessment is provided in **Section 3.3.1** and includes consideration of intra- and inter-water resource zone effects, as well as cumulative effects with neighbouring water company Drought Plans.

The UK Government's SEA guidance<sup>8</sup>, sets out the stages of the SEA process. This, together with guidance for undertaking SEA of Drought Plans and WRMPs, which has been produced by United Kingdom Water Industry Research (UKWIR)<sup>9</sup>, has been used to inform the methodology for the SEA. These documents remain the recommended best practice guidance for preparing SEAs of drought plans.

### 1.4.3 Stages of Strategic Environmental Assessment

Following screening, SEA comprises of five key stages:

- **Stage A:** Scoping;
- **Stage B:** Develop and Refine Alternatives and Assess Effects;
- **Stage C:** Prepare Environmental Report;
- **Stage D:** Consult on the Draft Plan and Environmental Report, Prepare the Post Adoption Statement;
- **Stage E:** Monitor Environmental Effects

The first stage of SEA (**Stage A**) is the production of a Scoping Report. This includes reviewing plans and programmes that could affect the Drought Plan or be affected by it, outlining baseline information for the plan and setting out the proposed framework for assessing potential environmental effects.

The SEA Scoping Report for the Drought Plan was issued for consultation to the statutory consultation bodies (NRW, Cadw, the Welsh Government, EA, Natural England and Historic England) for a five week period from 10<sup>th</sup> July 2024 to 21<sup>st</sup> August 2024.

Responses were received from NRW and CADW which resulted in amendments to the baseline information and assessment framework that has been used to assess the Drought Plan (a schedule of consultation responses to the Scoping Report is contained as **Appendix B**). The draft Drought Plan has been subject to assessment using the amended assessment framework (**Stage B**). This has comprised an assessment of both demand-side and supply-side measures, the findings of which are presented in this SEA Environmental Report (**Stage C**). Following receipt of the direction to do so, DCWW are publishing the documents for an 8 week consultation, beginning the 10th of January 2025 (**Stage D**).

Following consultation on the Environmental Report and an analysis of the responses, DCWW will prepare a Statement of Response to the representations received, setting out how and why the draft Drought Plan has or has not been revised to take account of the consultation responses. DCWW will submit to Welsh Government a revised draft Drought Plan and Environmental Report for confirmation that all representations have been appropriately taken into account.

Following further direction from the Welsh Government, DCWW will publish the final Drought Plan and implement it accordingly. In conjunction with publishing the final Drought Plan, DCWW will also issue a Post Adoption Statement. This will set out the results of the consultation and the extent to which the consultation and findings of the SEA have been incorporated into the final Drought Plan.

During the period of the Drought Plan, DCWW will monitor any significant environmental effects arising from the plan's implementation (**Stage E**). This Environmental Report also includes proposals for monitoring.

## 1.5 HABITATS REGULATIONS ASSESSMENT

The Conservation of Habitats and Species Regulations 2017 (the 'Habitats Regulations') requires that competent authorities assess the potential impacts of plans and programmes on the national site network of

<sup>8</sup> Office of the Deputy Prime Minister (2005). A Practical Guide to the Strategic Environmental Assessment Directive. Available at <https://www.gov.uk/government/publications/strategic-environmental-assessment-directive-guidance>

<sup>9</sup> UKWIR (2021) Environmental Assessment Guidance for Water Resources Management Plans and Drought Plans (21/WR/02/15). Prepared by Ricardo.

protected sites<sup>10</sup> to determine whether there will be any 'likely significant effects' on any European site as a result of the plan's implementation (either on its own or 'in combination' with other plans or projects); and, if so, whether these effects will result in any adverse effects on the site's integrity. The process by which the impacts of a plan or programme are assessed against the conservation objectives of a European site is known as Habitats Regulations Assessment (HRA)<sup>11</sup>.

The NRW drought plan guidance<sup>12</sup> states that those responsible for preparing the drought plan "**must ensure that the drought plan meets the requirements of the Conservation of Habitats and Species Regulations 2017**" and "**must carry out a HRA to test if the plan could significantly harm the designated features of a European site alone or in-combination with other plans and projects**" (for example, the effects of drought management actions on European sites)".

In accordance with the Habitats Regulations, what is commonly referred to as a HRA screening has been undertaken to identify whether DCWW's draft Drought Plan will have any likely significant effects on any European sites (either alone or 'in combination' with other projects or plans). Where the possibility of significant effects cannot be excluded, a more detailed Appropriate Assessment will be carried out to determine whether these effects would adversely affect the site's integrity.

The HRA has been undertaken and is being reported separately from the SEA. However, the conclusions of the HRA will help to inform the proposed assessment process, particularly in respect of the potential effects of the draft Drought Plan measures on biodiversity.

## 1.6 THE WELL-BEING OF FUTURE GENERATIONS (WALES) ACT 2015

The Well-being of Future Generations (Wales) Act 2015<sup>13</sup> places a duty on Welsh public bodies to carry out sustainable development. DCWW is not a public body; however, the Act, as noted in section 6(3), can apply to other parties 'who exercise functions of a public nature'.

In this Act, sustainable development is defined as "the process of improving the economic, social, environmental and cultural well-being of Wales by taking action, in accordance with the sustainable development principle, aimed at achieving the well-being goals". In this context, the sustainable development principle means that public bodies "must act in a manner which seeks to ensure that the needs of the present are met without compromising the ability of future generations to meet their own needs". In order to achieve this, the Act sets out that a public body must take into account:

- "the importance of balancing short term needs with the need to safeguard the ability to meet long term needs, especially where things done to meet short term needs may have detrimental long term effect;
- the need to take an integrated approach, by considering how—
  - (i) the body's well-being objectives may impact upon each of the well-being goals;
  - (ii) the body's well-being objectives impact upon each other or upon other public bodies' objectives, in particular where steps taken by the body may contribute to meeting one objective but may be detrimental to meeting another;
- the importance of involving other persons with an interest in achieving the well-being goals and of ensuring those persons reflect the diversity of the population of—
  - (i) Wales (where the body exercises functions in relation to the whole of Wales), or
  - (ii) the part of Wales in relation to which the body exercises functions;
- how acting in collaboration with any other person (or how different parts of the body acting together) could assist the body to meet its well-being objectives, or assist another body to meet its objectives;

<sup>10</sup> Protected sites within the UK refer to existing designated Special Areas of Conservation (SACs) and Special Protected Areas (SPAs) and new SACs and SPAs designated under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 Regulations. Within this report, the term "European site" is used as a generic term for all of the above designated sites.

<sup>11</sup> 'Appropriate Assessment' has been historically used as an umbrella term to describe the process of assessment as a whole. The whole process is now more accurately termed 'Habitats Regulations Assessment' (HRA), and 'Appropriate Assessment' is used to indicate the specific stage of HRA.

<sup>12</sup> Natural Resources Wales (2024) *Water Company Drought Plan Technical Guidance*. Version 2.0. July 2024

<sup>13</sup> Available from <http://www.legislation.gov.uk/anaw/2015/2/contents/enacted> [Accessed May 2024]

- *how deploying resources to prevent problems occurring or getting worse may contribute to meeting the body's well-being objectives, or another body's objectives."*

The seven well-being goals established in the Act are set out in **Table 0-4**.

**Table 0-4 The Well-being Goals for Wales**

| Goal                                                   | Description of the Goal                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A prosperous Wales                                     | An innovative, productive and low carbon society which recognises the limits of the global environment and therefore uses resources efficiently and proportionately (including acting on climate change); and which develops a skilled and well-educated population in an economy which generates wealth and provides employment opportunities, allowing people to take advantage of the wealth generated through securing decent work. |
| A resilient Wales                                      | A nation which maintains and enhances a biodiverse natural environment with healthy functioning ecosystems that support social, economic and ecological resilience and the capacity to adapt to change (for example climate change).                                                                                                                                                                                                    |
| A healthier Wales                                      | A society in which people's physical and mental well-being is maximised and in which choices and behaviours that benefit future health are understood.                                                                                                                                                                                                                                                                                  |
| A more equal Wales                                     | A society that enables people to fulfil their potential no matter what their background or circumstances (including their socio economic background and circumstances).                                                                                                                                                                                                                                                                 |
| A Wales of cohesive communities                        | Attractive, viable, safe and well-connected communities.                                                                                                                                                                                                                                                                                                                                                                                |
| A Wales of vibrant culture and thriving Welsh language | A society that promotes and protects culture, heritage and the Welsh language, and which encourages people to participate in the arts, and sports and recreation.                                                                                                                                                                                                                                                                       |
| A globally responsible Wales                           | A nation which, when doing anything to improve the economic, social, environmental and cultural well-being of Wales, takes account of whether doing such a thing may make a positive contribution to global well-being.                                                                                                                                                                                                                 |

The well-being goals have been fully reflected in the SEA assessment framework to help ensure alignment with national policy and legislation on sustainability. The well-being goals relevant to each SEA objective are set out in the assessment framework (see **Table 3-1**), which has been used to assess the options. A summary of the assessment against the well-being goals is included in Section 4.12.

## 1.7 THE ENVIRONMENT (WALES) ACT 2016

The Environment (Wales) Act 2016<sup>14</sup> introduced a new legislative approach for the sustainable management of natural resources (SMNR) in Wales. It seeks to maintain and enhance the resilience of Wales' ecosystems and the services and benefits they provide and, in so doing, meet the needs of the present generation without compromising the ability of future generations to meet their needs. Section 3(1) of the Environment (Wales) Act defines SMNR as:

- using natural resources in a way and at a rate that promotes achievement of the SMNR objective;
- taking other action that promotes achievement of that objective; and
- not taking action that hinders achievement of that objective.

The objective for SMNR referred to above is “to maintain and enhance the resilience of ecosystems and the benefits they provide and, in so doing—

(a) meet the needs of present generations of people without compromising the ability of future generations to meet their needs, and

(b) contribute to the achievement of the well-being goals in section 4 of the Well-being of Future Generations (Wales) Act 2015”.

To achieve the objective of SMNR, the Act introduces a number of principles. These principles, which are to be applied equally, are highlighted in **Figure 0-3**.

Figure 0-3 Sustainable Management of Natural Resources – Principles



<sup>14</sup> Welsh Government (2016) *The Environment (Wales) Act 2016*. Available online: <http://www.legislation.gov.uk/anaw/2016/3/contents/enacted> [Accessed May 2024]

The SEA has assessed the likely contribution of the draft Drought Plan to the objectives for SMNR by mapping the objective to each relevant SEA objective within the assessment framework (see **Table 3-1**). This is included in Section 4.12.

## 1.8 STRUCTURE OF THE ENVIRONMENTAL REPORT

The remainder of this Environmental Report is structured as follows:

**Section 2.2: Review of Plans and Programmes** - Provides an overview of the review of those plans and programmes relevant to the draft Drought Plan and SEA that is contained in **Appendix C**;

**Section 2.3: Baseline Analysis** - Presents the baseline analysis of environmental characteristics and identifies the key sustainability issues relevant to the draft Drought Plan and SEA;

**Section 3: Approach to the Assessment** - Outlines the approach to the SEA of the draft Drought Plan including the assessment framework and the technical difficulties encountered in completing the assessment including assumptions and uncertainties;

**Section 4: Assessment of the draft Drought Plan** - Presents the findings of the assessment of the draft Drought Plan. Commentary is also provided on the cumulative effects of the draft Drought Plan and on the likely contribution of the plan to the achievement of the well-being goals established in the Well-being of Future Generations (Wales) Act 2015 and objective for SMNR contained in the Environment (Wales) Act 2016;

**Section 5: Next Steps and Proposals for Monitoring** - Details the next steps in the SEA process including consultation details and presents views on how the environmental effects of the Drought Plan will be monitored.

The Environmental Report additionally contains a number of appendices including a Quality Assurance Checklist detailing how requirements of the SEA Regulations have been addressed (**Appendix A**), schedule of responses to the Scoping Report (**Appendix B**), review of plans and programmes (**Appendix C**), definitions of significance (**Appendix D**) and detailed assessment matrices (**Appendix E**).

## 1.9 CONSULTATION

### 1.9.1 Overview

Two opportunities are available for consultation bodies to be formally involved during the SEA process: during the scoping process; and at the environmental reporting stage. These are discussed below.

### 1.9.2 Consultation on the Scoping Report

The Scoping Report was issued on 10<sup>th</sup> July 2024 as detailed in Section 1.4.3. The consultation period ran until 21<sup>st</sup> August 2024. Consultation bodies were invited to express their views on the Scoping Report and the scope of the SEA proposed in accordance with SEA Regulation 12(5). NRW and CADW provided comments and the Environment Agency replied to state that they would not be responding to the consultation. **Appendix B** contains the responses received and how these have been addressed in this Environmental Report.

### 1.9.3 Consultation on the Environmental Report

The draft Drought Plan and accompanying documents including this Environmental Report are being submitted to the Welsh Government with a request for publication. Following receipt of the direction to do so, DCWW are publishing the documents for an 8 week consultation, beginning the 10th of January 2025.

The Environmental Report of the DCWW Drought Plan has been produced in accordance with the approach set out in the Scoping Report and taking into consideration the responses received from consultation bodies in response to the Scoping consultation. It provides assessments of the likely significant effects of the drought options considered and selected by DCWW.

The consultation bodies, as well as the public, are invited to express their views on this Environmental Report and use it as a reference point to express their views on the draft Drought Plan.

Comments should be sent to [water.resources@dwrcymru.com](mailto:water.resources@dwrcymru.com)

Following consultation and analysis of the responses, DCWW will prepare a Statement of Response to the representations received during the consultation period, setting out how and why the draft Drought Plan has been revised to take account of the consultation responses. Where required, DCWW will amend the draft Drought Plan and revise the Environmental Report to reflect these changes. DCWW will send the revised documentation to the Welsh Government for confirmation that all representations have been appropriately accounted for.

Following further direction from the Welsh Government, DCWW will publish the final Drought Plan and implement it accordingly. In conjunction with publishing the final Drought Plan, DCWW will also issue a SEA Post Adoption Statement. The Post Adoption Statement will set out how the SEA and any views expressed by the consultation bodies or the public have influenced the Drought Plan.

The SEA requires monitoring of any environmental effects arising as a result of the implementation of the Drought Plan.

## 1.10 QUALITY ASSURANCE

Government Guidance on SEA contains a Quality Assurance checklist to help ensure that the requirements of the SEA Regulations are met. The checklist is reproduced in **Appendix A**, indicating how this Environmental Report meets the requirement.

## 2. BASELINE AND CONTEXT

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### 2.1 INTRODUCTION

The SEA Regulations require the following specific baseline information to be included within the Environmental Report to identify the environmental characteristics of areas likely to be significantly affected by the Drought Plan, having regard, in particular, to-

- *“An outline of the contents and main objectives of the plan or programme, and of its relationship (if any) with other relevant plans and programmes.*
- *The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme.*
- *The environmental characteristics of areas likely to be significantly affected.*
- *Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated under EU-derived domestic legislation which transposed Council Directive [79/409/EEC](#) on the conservation of wild birds or [Directive 2009/147/EC](#) of the European Parliament and of the Council on the conservation of wild birds and the Habitats Directive.*
- *The environmental protection objectives, established at international, Community or national level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation”.*

A review of relevant policies, plans and programmes is presented in **Section 2.2**. Baseline environmental information is presented in **Section 2.3**. A summary of key issues has been prepared and is presented in **Section 2.4**.



## 2.2 REVIEW OF POLICIES, PLANS AND PROGRAMMES

One of the first steps in undertaking SEA is to identify other relevant policies, plans, programmes and environmental protection objectives (referred to as plans and programmes). This review sets out to establish how DCWW's Drought Plan might be affected by other plans, to identify other environmental protection objectives which the Drought Plan should consider and to help to identify the objectives for the SEA.

The plans and programmes were identified from the wide range that have been produced at an international, national, regional and local level. The following criteria were used to help ensure that the review focused on the plans and programmes most relevant to this SEA:

- Relevance to the Drought Plan - if the plan or programme did not have a significant effect on achieving the objectives of the Drought Plan or the Drought Plan did not have a significant effect on achieving the objectives of the other plan or programme, then it was not included.
- Relevance to DCWW - plans for the Wales region (which covers an area broadly similar to the area covered by DCWW) which reflected national and international priorities were considered to be most relevant.

The findings of the review of international, national, regional and local policies, plans, programmes and strategies are listed in . The information from this review has been used to direct the presentation of baseline information on the current environmental and social characteristics of DCWW's water supply area (**Section 2.3**), and to develop proposed objectives for the SEA (**Section 3.2**).

### 2.2.1 Policy Objectives Relevant to the Drought Plan

The Welsh Government 'Guiding Principles for Developing Water Undertaker Drought Plans for 2025<sup>15</sup>' (the Guiding Principles) highlights the Water Strategy for Wales, which makes clear the importance that the Welsh Government attaches to adopting an integrated and sustainable approach to managing water resources. This requires the integrated management of natural resources to maximise economic and social benefits in an equitable way while protecting all ecosystems and the environment. Drought Plans must set out how water supplies will be maintained in the event of a drought and water undertakers are expected to plan against more challenging but plausible droughts beyond the capabilities of their current supply system.

The Guiding Principles also highlight that drought plans should focus on delivering towards improving the social, economic, environmental and cultural well-being of Wales as reflected in the seven well-being goals established in the Well-being of Future Generations (Wales) Act 2015, and they should support other organisations to meet their statutory requirements under that Act.

The review of other plans and programmes presented in **Appendix C** has identified a number of objectives and policy messages relevant to the Drought Plan. Reflecting the topics identified in Schedule 2 of the SEA Regulations, these objectives and messages are set out for the following topic areas:

- Biodiversity, Flora and Fauna;
- Population and Human Health;
- Material Assets and Resource Use
- Water;
- Soil, Geology and Land Use
- Air and Climate;
- Archaeology and Cultural Heritage; and
- Landscape and Visual Amenity.

The policy objectives and messages identified from the review of other plans and programmes are summarised in **Table 2-1**. It is important that the assessment takes these into account as this will help to highlight any areas where the Drought Plan will help or hinder the achievement of the objectives of the other plans. In the interest of proportionality only those considered to be key plans and programmes are included.

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<sup>15</sup> Welsh Government (2024) The Welsh Government Guiding Principles for Developing Water Undertaker Drought Plans for 2025 (Draft).



Table 2-1 Key Policy Objectives Identified from the Review of Plans and Programmes

| SEA Topic                            | Key Policy Objectives                                                                                                                                                                                                                                                                    | Plans and Programmes relevant to SEA Topic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Biodiversity, Flora and Fauna</b> | Conservation and enhancement of the levels and variety of biodiversity, including designated sites, priority species and habitats                                                                                                                                                        | <b>International:</b><br>Bern Convention; Bonn Convention; Invasive Alien Species Regulation; Ramsar Convention on Wetlands; Birds Directive; EU Biodiversity Strategy to 2020; Marine Strategy Framework Directive;<br><br><b>National:</b><br>Habitats Regulations; Biodiversity 2020; Natural Environment White Paper; UK post 2010 Biodiversity Framework; Better Sea Trout and Salmon Fisheries; Eel Regulations: Wildlife and Countryside Act; UK Biodiversity Action Plan; Marine and Coastal Access Act; Conservation of Habitats & Species Regulations; A Green Future: Our 25 Year Plan to Improve the Environment; UK Marine Policy Statement; Countryside and Rights of Way Act; National Planning Policy Framework; Planning Policy Wales (Edition 12); Environment Strategy for Wales; TAN5: Nature Conservation and Planning; Environment (Wales) Act; Well-being of Future Generations (Wales) Act; National Indicators and National Milestones for Wales; Natural Resources Policy; The Nature Recovery Action Plan for Wales 2020 – 21; Priority Habitats of Wales; The Great Britain Invasive Non-native Species Strategy; State of Natural Resources Report (SoNaRR); Compliance Assessment of Welsh River SACs against Phosphorus Targets; NRW Corporate Plan<br><br><b>Regional/Sub-regional/Local:</b><br>Local Biodiversity Action Plans (BAP) including Species and Habitats Action Plans (various); Local Planning Authority Local Plans (various); AONB Management Plans; National Park Management Plans (various); Area Statements and Opportunity Catchments (Various) |
|                                      | Recognise the wider benefits of eco-system services through support for well-functioning ecosystems, respect environmental limits and capacities, and maintain/enhance coherent ecological networks, including provision for fish passage and connectivity for migratory/mobile species. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                      | To seek opportunities for biodiversity net gain from infrastructure development where the plan is within or affecting England.                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                      | Avoidance of activities likely to increase the risk of spread of Invasive Non-Native Species (INNS).                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Population and Human Health</b>   | Addressing deprivation and reducing inequality                                                                                                                                                                                                                                           | <b>International:</b><br>Aarhus Convention; World Summit on Sustainable Development; Environment Noise Directive; Guidelines for Community Noise; Europe 2020; Sustainable Development Strategy; Seventh Environmental Action Programme to 2020; UK Marine Policy Statement; A Roadmap for Moving to a Competitive Low Carbon Economy in 2050; Children's Environment and Health Action Plan for Europe.<br><br><b>National:</b><br>National Planning Policy Framework; People, Places, Futures: The Wales Spatial Plan 2008 Update; Energy Wales; Planning Policy Wales (Edition 12); Well-being of Future Generations (Wales) Act; National Indicators and National Milestones for Wales; Strategic Equality Plan 2020-2024; Welcome to Wales: Priorities for the visitor economy 2020 – 2025; Future Wales: The National Plan 2040; Our Economic Resilience & Reconstruction Mission; State of Natural Resources Report (SoNaRR); NRW Corporate Plan<br><br><b>Regional/Sub-regional/Local:</b><br>Local Planning Authority Local Plans (various); AONB Management Plans (various); National Park Management Plans (various); Area Statements and Opportunity Catchments (Various)                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                      | Promoting improvements to health and well-being                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                      | Providing high quality services, community facilities and social infrastructure that is accessible to all                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                      | Achieving sustainable economic growth and promoting key sectors in the local economy                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                      | Improving and expanding the tourism economy                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                      | Maximising job opportunities for all and enhancing the quality of employment opportunities                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                      | Minimising noise pollution                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                      | Promoting sustainable transport                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                      | Minimising waste production, promoting re-use and recycling                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

| SEA Topic                        | Key Policy Objectives                                                                      | Plans and Programmes relevant to SEA Topic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Material Assets and Resource Use | Promoting the most effective and efficient use of natural resources                        | <p>Waste Framework Directive; Landfill of Waste Directive; World Summit on Sustainable Development; Seventh Environmental Action Programme to 2020; Energy 2020; Europe 2020; A Roadmap for Moving to a Competitive Low Carbon Economy in 2050; Renewable Energy Directive; Energy Efficiency Directive</p> <p><b>National:</b></p> <p>Waste Management Plan for England; One Wales One Planet; Environment Strategy for Wales; National Planning Policy for Waste; Toward Zero Waste; Planning Policy Wales (Edition 12); Environment (Wales) Act; UK Sustainable Development Strategy; Natural Resources Policy; Carbon Plan; Climate Change Act; UK Renewable Energy Strategy; UK Renewable Energy Roadmap; UK Sustainable Development Strategy; National Planning Policy Framework; Climate Change Strategy for Wales; Energy Wales; Environmental Permitting (England &amp; Wales) Regulations; State of Natural Resources Report (SoNaRR); Climate Change (Wales) Regulations 2021; Climate Change in Wales: Health Impact Assessment</p> <p><b>Regional/Sub-regional/Local:</b></p> <p>Local Planning Authority Local Plans (various); Area Statements and Opportunity Catchments (Various)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                  | Promoting the use of sustainable/ renewable energy                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                  | Promoting the use of sustainable design and construction and encouraging energy efficiency |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Water                            | Protection and enhancement of all water supplies and resources                             | <p><b>International:</b></p> <p>Bathing Waters Directives; Drinking Water Directive; Nitrates Directive; Urban Waste Water Directive; Environmental Quality Standards Directive; Water for People and the Environment; Floods Directive</p> <p><b>National:</b></p> <p>Water Framework Directive Regulations (WFD Regulations), Water Act; Water Supply and Demand Policy; Restoring Sustainable Abstraction Programme; Future Water; A Green Future: Our 25 Year Plan to Improve the Environment; National Planning Policy Framework; Planning Policy Wales (Edition 12); Water Strategy for Wales; Natural Resources Wales Drought Plan; Water Company Drought Plans (various); Water Company Water Resource Management Plans (various); Shoreline Management Plan Guidance; National Flood and Coastal Erosion Risk Management Strategy for England; National Strategy for Flood and Coastal Erosion Risk Management in Wales; Flood and Water Management Act; National Planning Policy Framework; Planning Policy Wales (Edition 12); TAN15: Development and Flood Risk; The Water Use (Temporary Bans) Order 2010; Water Company Drought Plan Technical Guideline; The Drought Plan (Wales) Direction 2017; Natural Resources Wales Flood Risk Management Plan; Waterwise - Water Efficiency Strategy for the UK; State of Natural Resources Report (SoNaRR); Climate Change in Wales: Health Impact Assessment; Compliance Assessment of Welsh River SACs against Phosphorus Targets</p> <p><b>Regional/Sub-regional/Local:</b></p> <p>Abstraction Licensing Strategies (various); Local Planning Authority Local Plans (various); Shoreline Management Plans (various); Catchment Flood Management Plans (various); River Basin Management Plans (various); Catchment Flood Management Plans (various); Regional Flood Risk Management Plans (various); Water Resource Management Plans (various); Area Statements and Opportunity Catchments (Various)</p> |
|                                  | Promoting the sustainable and efficient use of water                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                  | Minimising flood risk to people and communities from flooding and coastal erosion          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                  | Minimising the risk of drought                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Soil, Geology and Land Use       | Protection and enhancement of geology and soil quality                                     | <p><b>International:</b></p> <p>Thematic Strategy for Soil Protection; European Soils Charter; Landfill of Waste Directive.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

| SEA Topic                         | Key Policy Objectives                                                                                                                                                      | Plans and Programmes relevant to SEA Topic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   | Promote catchment-wide approach to land use management in order to benefit natural resources, reduce pollution and develop resilience to climate change.                   | <b>National:</b><br>National Planning Policy Framework; Planning Policy Wales (Edition 12); TAN5: Nature Conservation and Planning; Natural Resources Policy; UK Geodiversity Action Plan; Agriculture (Wales) White Paper; State of Natural Resources Report (SoNaRR); NRW Corporate Plan; The National Peatland Action Programme; Revised World Soil Charter; Voluntary Guidelines for Sustainable Soil Management; Agriculture (Wales) Act 2023<br><b>Regional/Sub-regional/Local:</b><br>Local Planning Authority Local Plans (various); AONB Management Plans; National Park Management Plans (various); Local Geodiversity Action Plans (LGAPs); Area Statements and Opportunity Catchments (Various)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                   | Promote mixed use developments, and encourage multiple benefits from the use of land in urban and rural areas, recognising that some open land can perform many functions. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Air and Climate                   | Ensuring air quality is maintained or enhanced and that emissions of air pollutants are kept to a minimum                                                                  | <b>International:</b> Ambient Air Quality and Cleaner Air for Europe; Kyoto Protocol; Paris Agreement; Europe 2020; A Roadmap for Moving to a Competitive Low Carbon Economy in 2050; Strategy on Adaptation to Climate Change<br><b>National:</b> National Emissions Ceiling Directive; Industrial Emissions Directive; Air Quality Strategy for England, Scotland, Wales and Northern Ireland; Air Pollution: Action in a Changing Climate; Air Quality Plans; National Planning Policy Framework; Planning Policy Wales (Edition 12); National Adaptation Programme; Water for People and the Environment; UK Sustainable Development Strategy; National Flood and Coastal Erosion Risk Management Strategy for England; Adapting to Coastal Change; The Wales Spatial Plan 2008 Update; Environment Strategy for Wales; Climate Change Strategy for Wales; National Strategy for Flood and Coastal Erosion Risk Management in Wales; Natural Resources Policy; Natural Resources Wales Drought Plan; Climate Change Act; Renewable Energy Roadmap; Historic Environment and Climate Change in Wales; State of Natural Resources Report (SoNaRR); Climate Change (Wales) Regulations 2021; Climate Change in Wales: Health Impact Assessment; NRW Corporate Plan; Net Zero Wales<br><b>Regional/Sub-regional/Local:</b><br>Local Planning Authority Local Plans (various); Water Resources Management Plans (various); River Basin Management Plans (various); Shoreline Management Plans (various); Catchment Flood Management Plans (various); Area Statements and Opportunity Catchments (Various) |
|                                   | Minimising the effects of climate change on natural resources, inhabitants and the economy                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                   | Minimising emissions of greenhouse gases that cause climate change                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Archaeology and Cultural Heritage | Protecting and enhancing cultural heritage and archaeological sites                                                                                                        | <b>International:</b><br>World Heritage Convention; Granada Convention; Valletta Convention.<br><b>National:</b> Heritage Protection for the 21st Century - White Paper; Ancient Monuments and Archaeological Areas Act; Planning (Listed Buildings and Conservation Areas) Act; National Planning Policy Framework; Planning Policy Wales (Edition 12); The National Heritage Act; Historic Environment (Wales) Act; Register of Landscapes of Historic Interest; Well-being of Future Generations (Wales) Act; National Indicators and National Milestones for Wales; Priorities for the Historic Environment of Wales; Historic Environment and Climate Change in Wales; The Historic Environment – A Force for the Future; Heritage Protection for the 21st Century; The Culture White Paper; State of Natural Resources Report (SoNaRR); Climate Change (Wales) Regulations 2021<br><b>Regional/Sub-regional/Local:</b><br>Local Planning Authority Local Plans (various); World Heritage Site Management Plans (various); Area Statements and Opportunity Catchments (Various)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

| SEA Topic                    | Key Policy Objectives                                                                                      | Plans and Programmes relevant to SEA Topic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------|------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Landscape and Visual Amenity | Protecting and enhancing the quality and distinctiveness of natural landscapes and environmental resources | <p><b>International:</b><br/>European Landscape Convention</p> <p><b>National:</b><br/>National Planning Policy Framework; Planning Policy Wales (Edition 12); Environment Strategy for Wales; Register of Landscapes of Historic Interest; State of Natural Resources Report (SoNaRR); Valued and Resilient: The Welsh Government's Priorities for Areas of Outstanding Natural Beauty and National Parks</p> <p><b>Regional/Sub-regional/Local:</b><br/>AONB Management Plans (various); Local Planning Authority Local Plans (various); National Park Management Plans (various); National Landscape Character Areas (various); Area Statements and Opportunity Catchments (Various)</p> |

## 2.3 ENVIRONMENTAL BASELINE REVIEW

### 2.2.2 Introduction

This section of the report identifies and characterises the current environmental baseline conditions, providing commentary on how these are anticipated to change in the future, under the SEA topics outlined in **Section 2.2.1** (where information is available to do so). Baseline data has been drawn from a variety of sources, encompassing many of the plans and programmes reviewed as part of the SEA process, see **Table 2-1** and **Appendix C**. To conclude each sub-section, a summary is provided of the key issues which have arisen from the review.

### 2.2.3 Limitations of the Data and Assumptions Made

Most of the information used in the baseline relates to Wales as a whole, noting that DCWW provides water and wastewater services to parts of England whilst Hafren Dyfrydwy provide water services to parts of mid and north Wales. As such, this baseline information may not identify the more localised issues that may differ from the general trends of the region. For example, this may include locally important sites for recreation or any localised differences in environmental quality.

Data have generally been sourced from national or regional bodies where information is collected for Wales using consistent methods. This allows for a more effective comparison between the Welsh and UK averages; however, reliance on these data sets has in some cases meant that information is a number of years old.

The study area for the SEA is relatively large and covers different geographical and political areas, which makes establishing a baseline at the local level challenging.

There are also challenges around extrapolating information from data collated at differing spatial resolutions. Spatial data have been obtained for most of the SEA topics, and the baseline is presented graphically as mapped information where appropriate. In some instances, reporting cycles mean that available information is dated.

### 2.2.4 Overview

DCWW is the sixth largest water company in England and Wales, supplying water and wastewater services to approximately 1.4 million homes and businesses and nearly 3 million people in most of Wales, Herefordshire and parts of Deeside<sup>16</sup>. Wales is bordered by England to the east for 260km, the Bristol Channel to the south, the Irish Sea to the west and north and the Celtic Sea to the south-west. The majority of the DCWW population is concentrated in urban and suburban areas, particularly in cities and towns in the south such as Cardiff, Swansea and Newport. There are further substantial populations in Wrexham to the north as well as towns surrounding the South Wales Valleys, which were historically centres of coal mining and industrial activity.

The terrain is marked by mountains, including Yr Wyddfa (Snowdonia) in the north and the Bannau Brycheiniog (Brecon Beacons) in the south, offering spectacular vistas and opportunities for outdoor activities such as hiking and mountaineering. In addition to its rugged mountains, Wales features lush valleys, rolling hills, and a stunning coastline dotted with sandy beaches, dramatic cliffs, and picturesque fishing villages. The area is also characterised by numerous rivers, lakes, and reservoirs that form the basis of its water supply network.

It is acknowledged that the Drought Plan may impact upon some areas of England therefore information relating to these areas, where available is presented in the following sections where relevant.

### 2.2.5 Biodiversity, Flora and Fauna

#### 2.2.5.1 Baseline

Biodiversity is defined as the variety of plants (flora) and animals (fauna) in an area, and their associated habitats. The value of biodiversity conservation is recognised from an international to a local scale. Biodiversity has importance in its own right and has value to population and human health in terms of contributing to quality of life and amenity.

<sup>16</sup> Dŵr Cymru DCWW View Available at <https://corporate.dwrwymru.com/en/about-us> [Accessed March 2024]

Drought management measures have the capacity to affect biodiversity, flora and fauna. The sensitivity of environmental features to drought management measures is site specific. A drought is transient, and the utilisation of drought management measures would only be for a limited period. Therefore, the duration of effects on sensitive features and the reversibility of the effects post drought are important considerations.

Within the UK, protected areas for nature conservation fall into the following categories. These areas can overlap and include both national and international designations:

- Protected areas established under National Legislation. including Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNRs)
- Protected areas originally established as a result of European Union Directives or other European initiatives, including Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). In the UK, these form part of the 'national site network' protected under the Conservation of Habitats and Species Regulations 2017 (as amended).
- Protected areas set up under Global Agreements; including Ramsar sites which are wetlands of international importance designated under the Ramsar convention.
- Marine Protected Areas; including Marine Conservation Zones (MCZs) and Nature Conservation Marine Protected Areas.

Wales is rich in areas of biodiversity interest. The region includes a variety of sites that are designated at an international, European, national or local level as important for biodiversity, flora and fauna including<sup>17</sup>:

- 3 National Parks
- 10 Ramsar Sites
- 19 Special Protection Areas (SPA)
- 98 Special Areas of Conservation (SAC)
- 1,037 Sites of Special Scientific Interest (SSSI)
- 1 Marine Conservation Zone (MCZ)
- 71 National Nature Reserves (NNR)
- 6 Areas of Outstanding Natural Beauty
- 100 Local Nature Reserves (LNR)

Important nature conservation sites (Ramsar sites, SPAs, SACs and candidate SACs, and SSSIs) across the DCWW supply area are shown in **Figure 2-1** and **Figure 2-2**. These figures are based on Geographical Information System (GIS) layers available in April 2024.

Other internationally important sites to consider include the Rhinog Biogenetic Reserve in North Wales (Blaenau Ffestiniog WRZ) and the UNESCO biosphere reserve at Cors Fochno in the Dyfi estuary near Borth in Ceredigion (North Ceredigion WRZ)<sup>18</sup>.

Interest features associated with these European sites are vulnerable to water resource permissions (a function of sensitivity and exposure).

The 2020 Baseline Evaluation project<sup>19</sup> was established by NRW to assess the quality of the protected sites evidence base to help understand, where possible, the relative 'health' of the key species and habitats across the range of freshwater and terrestrial features on protected sites across Wales. The project concluded that an estimated 20% of features are in favourable and 30% in unfavourable condition. A summary of the results from this process is provided in **Table 2-2**. The majority of SAC features are reported to be in unfavourable

<sup>17</sup> Cyfoeth Naturiol Cymru / Natural Resources Wales *Designated Sites Search* (2024) Available at <https://naturalresources.wales/guidance-and-advice/environmental-topics/wildlife-and-biodiversity/protected-areas-of-land-and-seas/find-protected-areas-of-land-and-sea/?lang=en> [Accessed March 2024].

<sup>18</sup> The UNESCO Biosphere Reserve status is awarded in recognition of the way a local community lives sustainably in an area of special landscape quality with a rich wildlife. The designated area includes Aberystwyth, Llanbrynmair, Llanymawddwy, Corris Uchaf, and Aberdyfi.

<sup>19</sup> Cyfoeth Naturiol Cymru / Natural Resources Wales (2020) *Protected sites baseline assessment 2020*. Available at <https://naturalresources.wales/evidence-and-data/research-and-reports/protected-sites-baseline-assessment-2020/?lang=en> [Accessed May 2024]

condition (63%). The results also show that there is currently insufficient evidence to determine the condition of around half of the features of Wales' freshwater and terrestrial SSSIs<sup>20</sup>.

Table 2-2 Indicative condition results for features from baseline assessment 2020 (number of features (% of features))

| Domain                   | Indicative condition results for features (number of features (%)) |              |            |           |
|--------------------------|--------------------------------------------------------------------|--------------|------------|-----------|
|                          | Favourable                                                         | Unfavourable | Unknown    | Destroyed |
| Freshwater biodiversity  | 95 (25%)                                                           | 234 (60%)    | 55 (14%)   | 3 (1%)    |
| Terrestrial biodiversity | 499 (15%)                                                          | 940 (29%)    | 1784 (55%) | 29 (1%)   |
| Earth science            | 220 (46%)                                                          | 75 (16%)     | 183 (38%)  | N/A       |
| Habitat features         | 138 (8%)                                                           | 653 (40%)    | 847 (52%)  | 4 (0.24%) |
| Species features         | 456 (23%)                                                          | 521 (26%)    | 992 (50%)  | 28 (1%)   |
| SAC                      | 50 (15%)                                                           | 214 (63%)    | 72 (21%)   | 3 (1%)    |
| SPA                      | 8 (36%)                                                            | 2 (9%)       | 12 (55%)   | N/A       |
| SSSI                     | 756 (20%)                                                          | 1033 (28%)   | 1938 (52%) | 29 (1%)   |
| All                      | 814 (20%)                                                          | 1249 (30%)   | 2022 (49%) | 32 (1%)   |

<sup>20</sup> Smith, A., Boswell, J., Halliwell, E. et al. (2023) *State of Nature Wales 2023*. State of Nature Partnership. Available at: [TP26053-SoN-Wales-summary-report-v10.pdf \(stateofnature.org.uk\)](#) [Accessed May 2024]



Figure 2-1: European Sites in the DCWW Supply Area

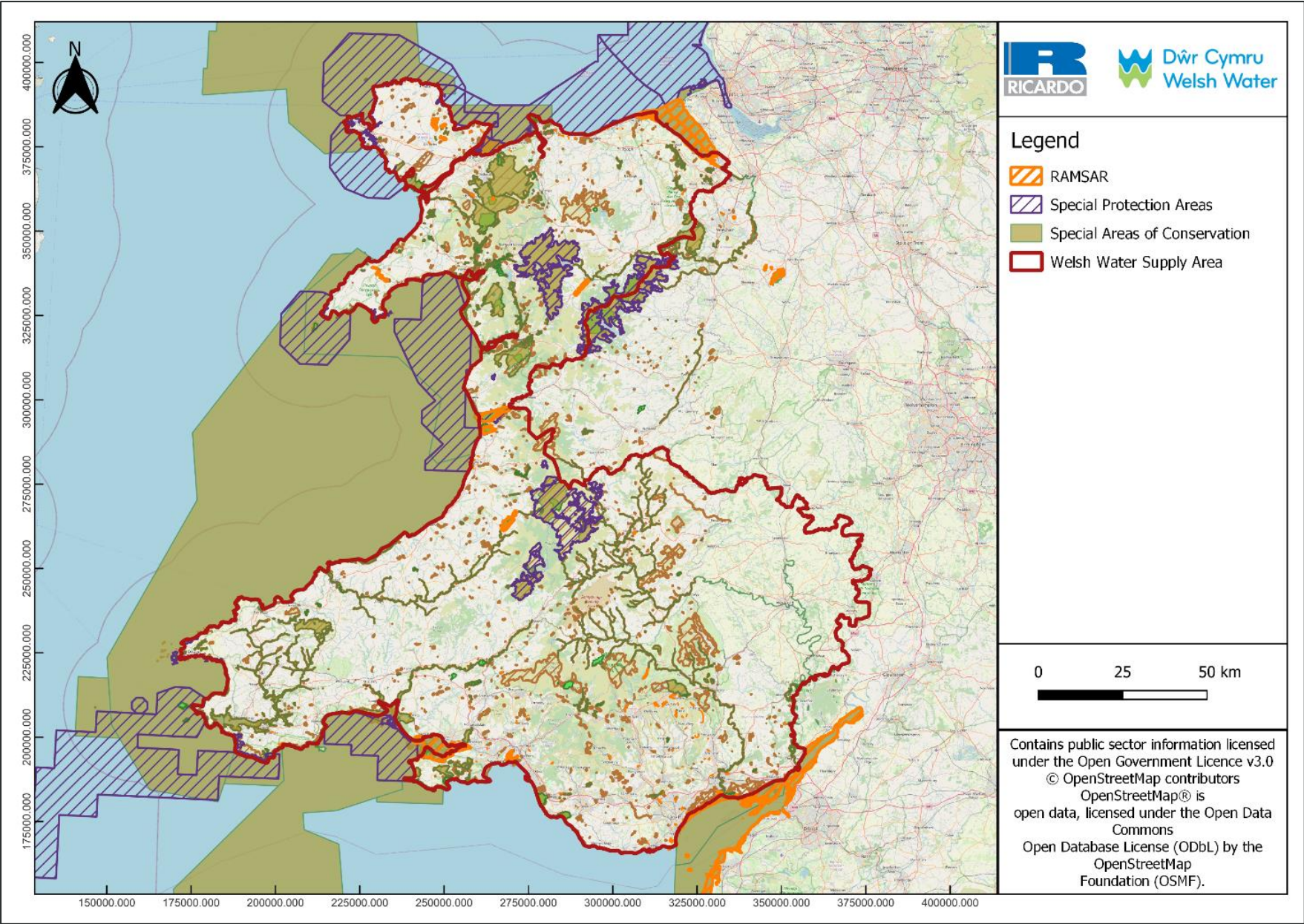
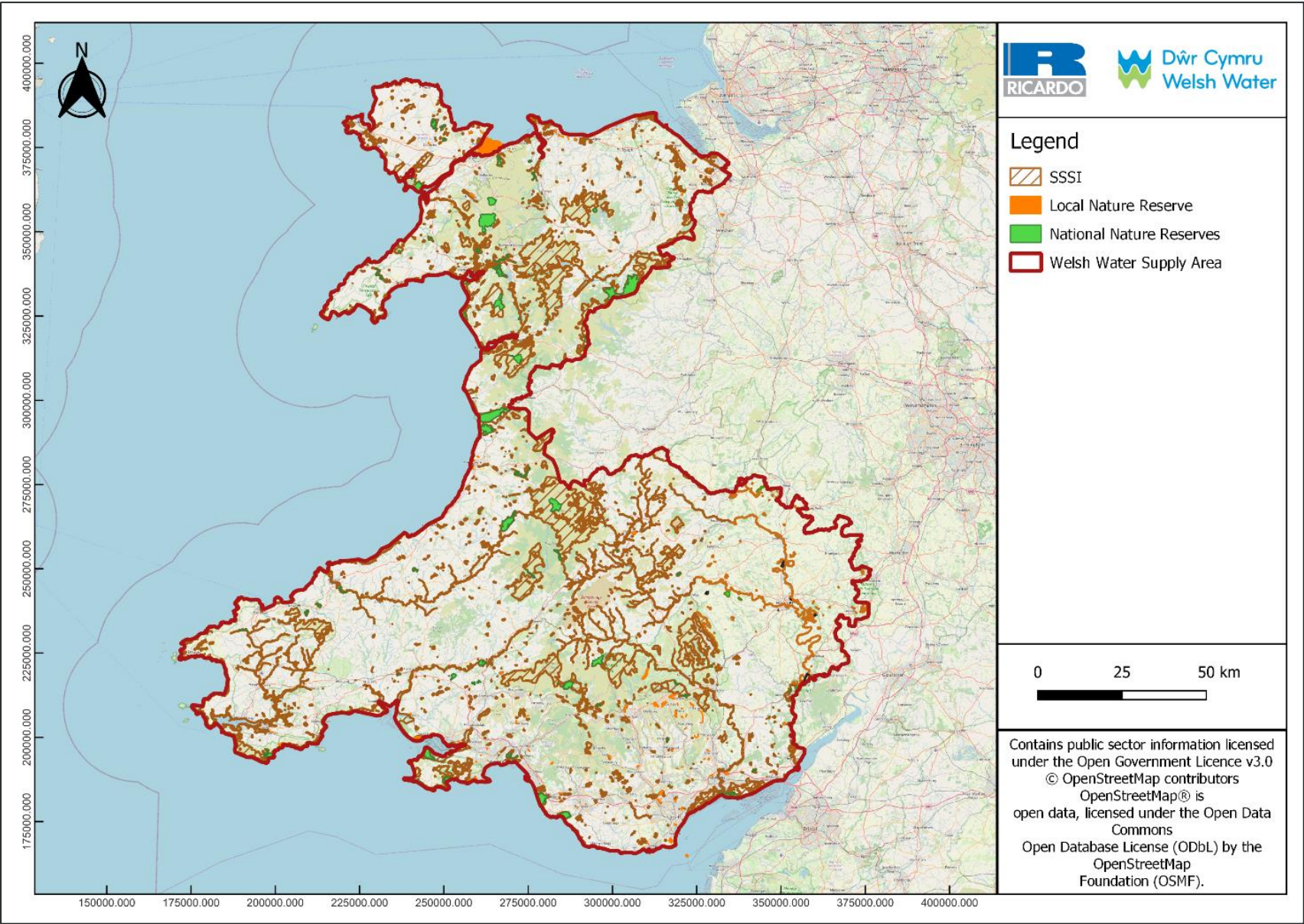




Figure 2-2: National and Local Nature Conservation Designations in the DCWW Supply Area



### 2.2.5.2 Future Baseline

Wales is party to a set of international biodiversity targets under the Convention on Biological Diversity (CBD) COP15 summit, referred to as the Global Biodiversity Framework (GBF). In support, the Welsh Government has committed to setting legally binding nature recovery targets that will be aligned with a refreshed national biodiversity strategy for Wales before the next elections in 2026. According to the Global Assessment Report on Biodiversity and Ecosystem Services published by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), there has been an unparalleled reduction in the biodiversity of the Earth, encompassing both species and habitats, in recorded human history<sup>21</sup>.

The Welsh Government has set up the 'Biodiversity Deep Dive'<sup>22</sup> which transposes the GBF and findings of the IPBES assessment into Welsh policy and legislation. The Deep Dive identifies the key actions for nature recovery in Wales to achieve their target to protect and effectively manage 30% of land and sea by 2030 (the GBF '30 by 30' target). Wales' Nature Recovery Action Plan (NRAP) emphasises its commitment to the protection of nature and its biodiversity with the aim to *'To reverse the decline in biodiversity, for its intrinsic value, and to ensure lasting benefits to society'*<sup>23</sup>

The development of a Sustainable Farming Scheme in response to recently passed Agriculture (Wales) Bill 2023 will see nature restoration as a core objective to enable the key driver of biodiversity loss to become a major contributor to nature recovery alongside other essential nature improvement mechanisms being developed.

The last four published 'State of Nature Reports' for Wales (2013<sup>24</sup>, 2016<sup>25</sup>, 2019<sup>26</sup> and 2023<sup>27</sup>) show a continuing decline in biodiversity. Although this does not include all species as some are experiencing recovery, the threat is high especially for those that continue to decline. Of the species assessed in Wales, 18% are threatened with extinction. In addition, species abundance has fallen on average by 20% since 1994, including for Atlantic Salmon (*Salmo salar*) where river stocks in 2021 were assessed as 'at risk' or 'probably at risk'<sup>28</sup>.

The latest 'State of Nature Report', published in 2023, cites ecosystem change and degradation in key habitats as one of the direct drivers of biodiversity loss in Wales. Ecosystem restoration is the process which aims to reverse this. Under the GBF, there is a commitment to ensure that 30% of degraded habitats are under effective restoration by 2050. Restoration should increase the resilience of ecosystems and enhance biodiversity through both ecosystems-based approaches and nature-based solutions which can also provide co-benefits to the population, such as flood alleviation. There are several initiatives in operation across Wales targeting the restoration of areas of woodland, peatland, grassland and marine habitats, however, a rapid increase is required to tackle biodiversity loss.

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<sup>21</sup> IPBES (2019): Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. S. Díaz, J. Settele, E. S. Brondízio et al. IPBES secretariat, Bonn, Germany. 56 pages. <https://doi.org/10.5281/zenodo.3553579>

<sup>22</sup> Welsh Government (2022) *Biodiversity deep dive: recommendations*. October 2022. Available at: <https://www.gov.wales/biodiversity-deep-dive-recommendations-html> [Accessed May 2024]

<sup>23</sup> Welsh Government (2015) *Nature recovery action plan*. Available at: <https://www.gov.wales/nature-recovery-action-plan> [Accessed October 2024]

<sup>24</sup> Burns F, Eaton MA, Gregory RD et al. (2013) *State of Nature: Wales*. In *State of Nature report*. The State of Nature partnership. Available online: <https://www.bto.org/research-data-services/publications/state-nature/2013/state-nature-report-2013> [Accessed May 2024]

<sup>25</sup> Hayhow DB, Burns F, Eaton MA, Bacon L et al. (2016) *State of Nature 2016: Wales*. The State of Nature partnership. Available online: <https://www.bto.org/sites/default/files/publications/state-of-nature-report-2016-wales-english.pdf> [Accessed May 2024]

<sup>26</sup> Hayhow DB, Eaton MA, Stanbury AJ, Burns F et al. (2019) *The State of Nature 2019: A Summary for Wales*. The State of Nature partnership. Available online: [state-of-nature-2019-summary-report-wales.pdf \(bto.org\)](https://www.bto.org/sites/default/files/publications/state-of-nature-report-2019-wales-english.pdf) [Accessed March 2024]

<sup>27</sup> Smith, A., Boswell, J., Halliwell, E. et al. (2023) *State of Nature Wales 2023*. State of Nature Partnership. Available at: [TP26053-SoN-Wales-summary-report-v10.pdf \(stateofnature.org.uk\)](https://www.bto.org/sites/default/files/publications/state-of-nature-report-2023-wales-english.pdf) [Accessed May 2024]

<sup>28</sup> Smith, A., Boswell, J., Halliwell, E. et al. (2023) *State of Nature Wales 2023*. State of Nature Partnership. Available at: [TP26053-SoN-Wales-summary-report-v10.pdf \(stateofnature.org.uk\)](https://www.bto.org/sites/default/files/publications/state-of-nature-report-2023-wales-english.pdf) [Accessed May 2024]

The protection of SSSIs is inherent to the conservation of species across Wales, particularly those which are vulnerable. Well-managed protected areas are critical to the survival of these species and priority habitats.

#### *DCWW Activities*

DCWW has a statutory duty to maintain and enhance biodiversity under Section 6 of the Environment (Wales) Act 2016. It is acknowledged that the organisation needs to develop biodiversity measures and improve data surrounding their assets. As a result, DCWW published its Biodiversity Strategy<sup>29</sup> in 2022, which sets out the ambitions, objectives and action plan to maintain and enhance biodiversity and ecological resilience across the operational area. The strategic objectives focus on the following areas;

- Restore habitats and look after protected sites owned by DCWW,
- Work in partnership with regulators and stakeholders, and promote research opportunities,
- Improve the management of INNS,
- Develop and engage colleagues as ambassadors and work better to understand customers' expectations, and
- Maintain and enhance biodiversity at DCWW assets and landholdings.

The strategy will be delivered through DCWW's Biodiversity Plan<sup>30</sup> which sets out how, in the exercise of its functions, it proposes to comply with its duty to maintain and enhance biodiversity and in so doing promote the resilience of ecosystems. As part of the ongoing conservation work, DCWW runs both a Biodiversity Fund and a Water Framework Directive fund for projects that meet both of these drivers and support DCWW activities. DCWW has also trialled initiatives such as "Pest Smart" and "Weed Wiper" which have worked well in addressing the effects of excessive nutrient input. DCWW also work with others to maintain and enhance biodiversity, including:

- Contributing to the Llyn Fens LIFE Project in Anglesey, the largest wetland restoration project in Wales;
- Working with NRW and the Bannau Brycheiniog (Brecon Beacons) National Park Authority to deliver two peat restoration projects and leading on the Brecon Beacons "Mega catchment" project;
- Supporting charitable organisations to develop and deliver actions at a local level, contributing the wider national effort to ensure 'good ecological status' of watercourses under the Water Framework Directive or, where this is unachievable, 'good ecological potential'; and
- Supporting organisations to deliver effective plans for the control or invasive non-native species.

#### **2.2.5.3 Key Issues**

The key issues relevant to the Drought Plan arising from the baseline assessment for biodiversity are:

- The need to protect and enhance biodiversity in Wales, particularly within protected sites, species and habitats designated for nature conservation;
- The need to continue to increase and improve the condition of priority habitats and habitats of priority species, and restore populations of these species and other specially protected species;
- The need to avoid activities likely to cause irreversible damage to natural heritage;
- The need to take opportunities to improve connectivity between fragmented habitats to create functioning habitat corridors;

<sup>29</sup> DCWW (2022) *Biodiversity Strategy 2022*. Available online: <https://corporate.dwrcymru.com/en/community/environment/conservation-and-biodiversity> [Accessed May 2024]

<sup>30</sup> DCWW (2022) *Making time for Nature*. Available online: <https://corporate.dwrcymru.com/-/media/project/files/page-documents/corporate/environment/biodiversity-strategy-2022.ashx> [Accessed March 2024]



- The need to control the spread of Invasive Non-Native Species (INNS);
- The need to recognise the importance of allowing wildlife to adapt to climate change; and
- The need to engage more people in biodiversity issues so that they personally value biodiversity and know what they can do to help, including through recognising the value of the ecosystem services.

## 2.2.6 Population and Human Health

### 2.2.6.1 Baseline

#### *Population*

DCWW provides water supply and sewerage services to over 3 million people. Although the majority of people are located in Wales, the company also supplies water to areas of England (approximately 117,000 customers).

The population of Wales at the time of the 2021 Census was 3,107,500; the largest population ever recorded. The population has grown by 44,000 (1.4%) since the last census in 2011, where it was 3,063,456<sup>31</sup>. The 2022 mid-year estimates indicated a population of 3,131,640 and population density of 151 people per square kilometre<sup>32</sup>. Overall population densities have increased between 2011 and 2022 although there are instances, most notably Ceredigion and Blaenau Gwent, where densities have fallen by 4.9% and 4% respectively.

The change in Wales' population between 2001 - 2021 show that the local authority with the greatest rate of population growth since 2011 is Newport (9.5%), followed by Cardiff (4.7%) and Bridgend (4.5%). Meanwhile, Ceredigion, Blaenau Gwent and Gwynedd all experienced population decreases of between 5.8 and 3.7% over the same timeframe<sup>33</sup>.

Household growth projections<sup>34</sup> show that the number of households in Wales has increased, from 1,302,676 in 2011 to 1,347,100 in 2021 (a 3.4% increase). Overall, this is a lower rate of growth than between 2001 and 2011 where the number of households increased by 7.7%. Household estimates show that the average household size in Wales in 2020 was 2.26, compared with 2.52 in 1991<sup>35</sup>.

#### *Economy and Employment*

**Table 2-3** shows the proportion of economically active adults (aged 16 to 64) during the period October to December 2023 in Wales was 73.8%. This is 4.3% lower than the figure for the UK over the same period (78.1%). Economically active in this context is defined by the Office for National Statistics (ONS) as those persons of working age who are employed or looking to be employed. Approximately 3.5% of those aged 16 and over were unemployed over the period October to December 2023 in Wales, compared to 3.8% for the UK.

<sup>31</sup> Welsh Government (2021) *Population and household estimates for Wales (Census 2021)*. Available online: <https://www.gov.wales/sites/default/files/pdf-versions/2022/6/2/1656410438/population-and-household-estimates-wales-census-2021.pdf> [Accessed April 2024]

<sup>32</sup> Stats Wales (2023) *Population density (persons per square kilometre) by local authority and year*. Available online: <https://stats.wales.gov.wales/Cahttps://www.gov.wales/national-population-projections-2021-based-interim-data#:~:text=Between%20mid%2D2021%20and%20mid,the%20most%2C%20by%207.9%25ta%20logue/Population-and-Migration/Population/Density/populationdensity-by-localauthority-year>. [Accessed April 2024]

<sup>33</sup> ONS (2022) *Population and household estimates, Wales: Census 2021*. Available online: <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/populationandhouseholdestimateswales/census2021> [Accessed May 2024]

<sup>34</sup> ONS (2022) *Population and household estimates, Wales: Census 2021*. Available online: <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/populationandhouseholdestimateswales/census2021> [Accessed May 2024]

<sup>35</sup> ONS (2021) *Household estimates: mid-2020*. Available online: <https://www.gov.wales/household-estimates-mid-2020.html> [Accessed May 2024]

Nomis (2024) *Labour Market Profile - Wales*<sup>36</sup> shows the breakdown of the workforce by industry sector as of June 2024. The data indicates that the largest proportion of jobs in Wales are in human health and social work activities, and wholesale and retail trade and repair of vehicles, similar to UK trends. A total of 17,000 jobs (1.1%) in Wales are within the water supply, sewerage and waste management sector, which is slightly more than the proportion of jobs in this sector for the UK as a whole (0.7%). In 2024, DCWW directly employed 3,790 staff and both directly and indirectly supported over 9,000 jobs<sup>37</sup>.

Table 2-3: Economic Activity (Oct 2023-Dec 2023)<sup>38</sup>

|                       | Wales     | Wales (%) | UK         | UK (%) |
|-----------------------|-----------|-----------|------------|--------|
| Economically Active   | 1,488,000 | 73.8      | 34,494,000 | 78.1   |
| In Employment         | 1,437,000 | 71.1      | 33,174,000 | 75.0   |
| Unemployed            | 51,000    | 3.5       | 1,320,000  | 3.8    |
| Economically Inactive | 500,000   | 26.2      | 9,278,000  | 21.9   |

Stats Wales (2024) *Active Business Enterprises by area and year 2017* has reported that that in 2022 there were 104,520 active business enterprises in Wales. This is an 18% increase since 2011, with 9.4% of that increase being from 2011-2016. However, the national increase has seen regional variations. The Mid Wales region has seen a decrease of -1.4% over the period 2011 to 2022, with Ceredigion seeing the biggest decrease in Wales at -2%<sup>39</sup>. The Southeast Wales region had the biggest increase of 28.4%, with Rhondda Cynon Taff (34.3%) and Cardiff (35%) having the greatest increase in Wales over the period.

### Education and Skills

The highest level of qualification is a useful indicator for education across Wales. During the last census in 2021, adults aged 16 and over were asked to record any qualifications achieved and **Table 2-4** documents the results. Overall, Wales had a greater number of people indicating no qualifications when compared to England (18.1%) as well as lower proportion of people who indicated their highest level of qualification was Level 4 or above when compared to England (33.9%).

Table 2-4: Highest level of qualification achieved by adults (16 years and over) in Wales, Census 2021<sup>40</sup>

| Qualification                                                                                                                                                                   | Wales           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| <b>No qualifications</b>                                                                                                                                                        | 510,000 (19.5%) |
| <b>Level 1:</b> 1 to 4 GCSE passes (i.e. grade A* to C or grade 4 and above) and any other GCSEs at other grades, Foundation Welsh Baccalaureate, or equivalent qualifications. | 223,000 (8.7%)  |

<sup>36</sup> Nomis (2018) *Labour Demand, Workforce jobs by industry section– seasonally adjusted*. Available online: <https://www.nomisweb.co.uk/reports/lmp/gor/2013265930/report.aspx?town=wales#tabwfjobs> [Accessed May 2024]

<sup>37</sup> Dŵr Cymru Cyfyngedig (2024) *Annual report and financial statements for the year ended 31 March 2024*. Available online: <https://corporate.dwrcymru.com/en/library/group-annual-report-and-accounts> [Accessed April 2024]

<sup>38</sup> Nomis (2024) *Labour Market Profile – Wales* Available online: <https://www.nomisweb.co.uk/reports/lmp/gor/2013265930/report.aspx?town=wales> [Accessed April 2024]

<sup>39</sup> Stats Wales (2024) *Active Business Enterprises by area and year 2017*. Available online: <https://statswales.gov.wales/Catalogue/Business-Economy-and-Labour-Market/Businesses/Business-Demography/activebusinessenterprises-by-area-year> [Accessed April 2024]

<sup>40</sup> ONS (2023) *Education, England and Wales: Census 2021*. Available online: <https://www.ons.gov.uk/peoplepopulationandcommunity/educationandchildcare/bulletins/educationenglandandwales/census2021> [Accessed May 2024]

| Qualification                                                                                                                             | Wales           |
|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| <b>Level 2:</b> 5+ GCSE passes (i.e. grade A* to C or grade 4 and above), Intermediate Welsh Baccalaureate, or equivalent qualifications. | 367,000 (14.4%) |
| <b>Apprenticeships</b>                                                                                                                    | 143,000 (5.6%)  |
| <b>Level 3:</b> 2+ A Levels, Advanced Welsh Baccalaureate, or equivalent qualifications.                                                  | 441,000 (17.2%) |
| <b>Level 4 or above:</b> Higher National Certificate, Higher National Diploma, Bachelor's degree, or post-graduate qualifications         | 807,000 (31.5%) |
| <b>Other qualifications</b> , of unknown level.                                                                                           | 69,000 (2.7%)   |

### Health and Deprivation

The Drought Plan has the potential to influence quality of life and human health through alterations to infrastructure and restrictions to water use. The Drought Plan sets out measures to ensure that essential water supplies can be maintained to all DCWW's customers, thereby protecting human health during drought conditions.

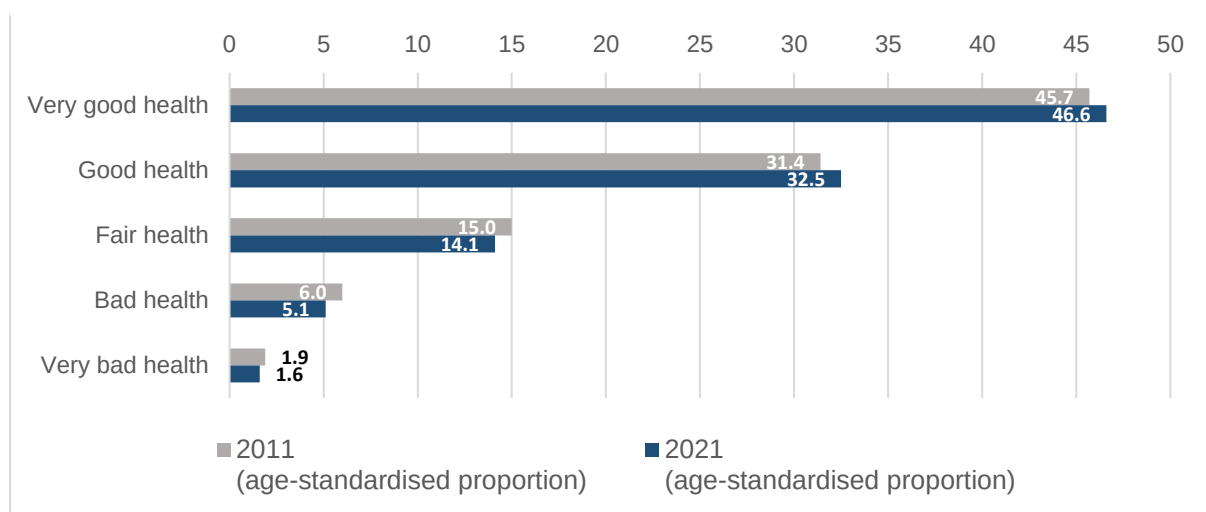
Life expectancy is used as a broad measure of the health of an area and where a person is born largely influences how long they will live. In Wales the average life expectancy at birth for the period 2020 to 2022 was 77.9 years for men and 81.8 years for women, compared to 78.8 and 82.8 years respectively for the United Kingdom<sup>41</sup>.

The National Survey for Wales 2022 - 23<sup>42</sup> identified that 13% of adults' smoke. A total of 17% of adults drank over the weekly guidelines and 29% ate 5 or more portions of fruit and vegetables a day. Just over half of the people surveyed, 55%, were active for 150 minutes or more the previous week. With regards to obesity, 37% of adults reported a healthy weight and 63% were obese. 92% of adults reported following 2 or more of the 5 healthy behaviours (namely not smoking, never or rarely drinking alcohol, eating fruit or vegetables every day, having a healthy weight and being physically active for an hour or more per day, over the past seven days).

The 2021 Census data for general health in Wales (Figure 2-3) demonstrated increases in the amount of people reporting 'very good' or 'good' health as well as decreases in other categories. Gwynedd (51.5%) and the Isle of Anglesey (50.7%) had the highest proportion of people reporting very good health, meanwhile Merthyr Tydfil had the highest proportion of people describing their health as very bad (2.4%).

<sup>41</sup> ONS (2024) *National life tables – life expectancy in the UK: 2020 to 2022*. Available online: <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/lifeexpectancies/bulletins/nationallifetablesunitedkingdom/2020to2022#:~:text=Life%20expectancy%20at%20birth%20in%202020%20to%202022%20was%20estimated,at%2081.8%20years%20for%20females> [Accessed April 2024]

<sup>42</sup> Welsh Government (2023) *Adult lifestyle (National Survey for Wales): April 2022 to March 2023*. Available at: <https://www.gov.wales/adult-lifestyle-national-survey-wales-april-2022-march-2023> [Accessed April 2024]

Figure 2-3 Age-standardised general health, 2011 and 2021, Wales<sup>1</sup>

### Welsh Index of Multiple Deprivation

The Welsh Index of Multiple Deprivation (WIMD) is the official measure of deprivation for small areas in Wales and identifies whether an area is more or less deprived relative to other small areas in Wales. It was developed for the Welsh Government by the Statistical Directorate and the Local Government Data Unit (Wales). Deprivation refers to unmet need, which is caused by a lack of resources. The WIMD is based on eight different indicators of deprivation: income, employment, health, education, access to services, community safety, physical environment and housing.

**Figure 2-4** shows the WIMD 2019 by Lower Layer Super Output Area (LSOA) for Wales<sup>4344</sup>. There are 1,909 LSOA in Wales. The indices highlight that there are some distinct pockets of deprivation, which are predominantly in the South Wales valleys and cities, and some North Wales coastal and border towns. The local authority with the highest proportion of small areas in the most deprived 10% in Wales in WIMD 2019 was Newport (24.2%). Blaenau Gwent had the highest percentage of areas in the most deprived 50% in Wales (85.1%).

Levels of deprivation, particularly income deprivation, affect the ability of customers to pay for water and may also impact on total water usage. In 2023, DCWW helped approximately 146,000 customers who were struggling to pay their bills through a range of financial support options<sup>45</sup>.

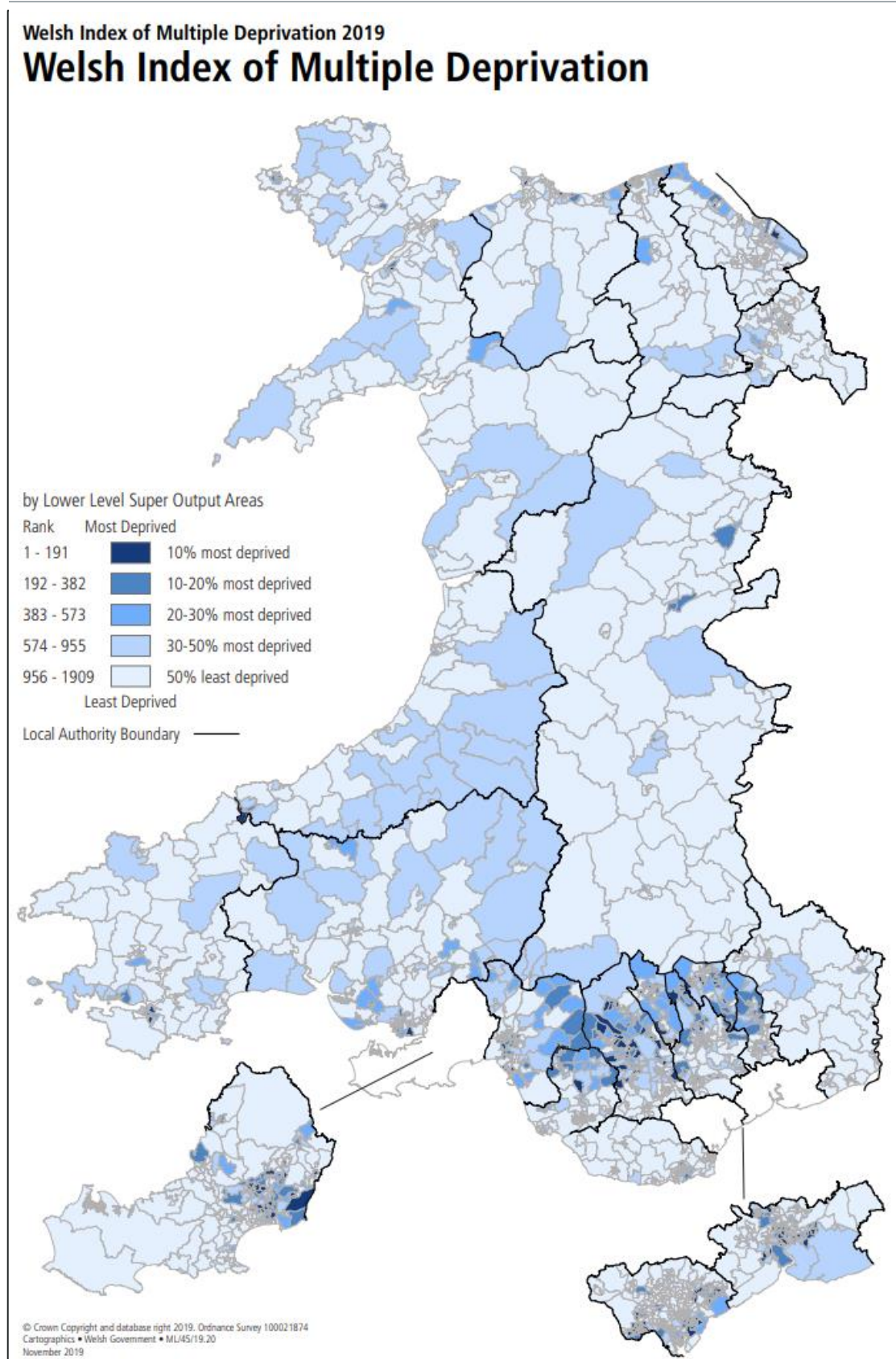
<sup>43</sup> Welsh Government (2019) *Welsh Index of Multiple Deprivation (WIMD) 2019 Results report*. Available online: <https://www.gov.wales/sites/default/files/statistics-and-research/2020-06/welsh-index-multiple-deprivation-2019-results-report.pdf> [Accessed April 2024]

<sup>44</sup> Small areas (LSOAs) of 'deep-rooted' deprivation are those that have remained within the top 50 most deprived, roughly equal to the top 2.6%, small areas in Wales for the last five publications of WIMD rankings

<sup>45</sup> Powell D (2024) *Thousands of people could be missing out on support to help pay water bills*. Available online: <https://www.dailypost.co.uk/news/north-wales-news/thousands-people-could-missing-out-28633222> [Accessed April 2024]



Figure 2-4 Index of Multiple Deprivation in Wales<sup>1</sup>



## Recreation and Tourism

In Wales, 167.77 million leisure day trips lasting 3 hours or more were taken during 2023, which represents a decrease of 6.7% from 2022. 40% of leisure day trips taken were tourism day trips compared to 34% in 2022. The total spend attributed to domestic tourism trips in Wales in 2023 was £5.43 billion, down from £5.48 billion spent in 2022 <sup>46,47</sup>.

There are 132,000 people directly employed in the visitor economy around 9.5% of the workforce <sup>48</sup>. The highest numbers of tourism jobs are in Cardiff and Swansea. However, the tourism industries in the coastal areas of North and West Wales play a vital role in local economies. A significant proportion of tourism trips (both day and overnight trips) taken in Wales were to the seaside and coastal areas, but a lower proportion were taken to large cities and towns. <sup>49</sup>

With specific regard to water resources, large seasonal fluxes in tourist numbers create additional demand on water resources in summer months when demand is already at its highest. There may be an increasing trend in the near future in light of the expected increase in domestic holidays due to the current economic situation.

DCWW owns 91 reservoirs and 40,000 hectares of land which include five visitor attraction sites and recreational and leisure facilities that between them attract around 739,000 visitors each year, making a valuable contribution to tourism and the local economy<sup>50</sup>. The principal reservoirs also support angling. Inland fisheries contribute strongly to the economic wellbeing of Wales and are estimated to generate an average of 87 million expenditure per year by anglers in Wales<sup>51</sup>. DCWW's wastewater management activities influence the tourist industry due to the impacts on River and Bathing Water quality.

## Transport

Welsh Transport Statistics states that the total combined length of roads in Wales in 2023 was 35,150 km, an increase of 0.1% on the previous financial year (2021-22). In 2022-23 the road increases were mainly due to the adoption of new roads and network reviews<sup>52</sup>.

As of the end of 2023, 76.3% of the motorway and 84.5% of trunk roads will not be in need of monitoring for at least 20 years. On the other hand, 7.4% of the motorway network and 2.6% of the trunk road network in Wales will require close monitoring of the structural condition during this period. Powys contains the largest road network of all the Welsh local authorities. It also accounts for the highest proportion of all A Trunk roads (27.3%), B and C roads (21.0%) and minor surfaced roads (12.3%), resulting in an overall 15.7% of the total road length of Wales.<sup>53</sup>

<sup>46</sup> Welsh Government (2023) *Domestic GB Tourism Statistics (day trips in Wales): 2022*. Available online: <https://www.gov.wales/domestic-gb-tourism-statistics-day-trips-wales-2022-html> [Accessed April 2024]

<sup>47</sup> Welsh Government (2024) *Domestic GB Tourism Statistics (day trips in Wales): October to December 2023*. Available online: <https://www.gov.wales/domestic-gb-tourism-statistics-day-trips-wales-october-december-2023-html#141270> [Accessed April 2024]

<sup>48</sup> Welsh Government (2020) *Welcome to Wales: Priorities for the Visitor Economy 2020 – 2025*. Available online: <https://www.gov.wales/sites/default/files/publications/2020-01/welcome-to-wales-priorities-for-the-visitor-economy-2020-to-2025-summary.pdf> [Accessed April 2024]

<sup>49</sup> Welsh Government (2024) *Domestic GB Tourism Statistics (day trips in Wales): October to December 2023*. Available online: <https://www.gov.wales/domestic-gb-tourism-statistics-day-trips-wales-october-december-2023-html#:~:text=Just%20under%206%20in%2010,to%20the%20whole%20of%20GB> [Accessed June 2024]

<sup>50</sup> DCWW (2023) *DCWW Report and Accounts 2022 - 2023*. Available online: <https://corporate.dwcymru.com/en/library/group-annual-report-and-accounts> [Accessed April 2024]

<sup>51</sup> Natural Resources Wales (2020) *Assessment of the impacts of recreational sea angling in Wales*. Available online: [https://naturalresources.wales/media/694733/impacts-of-recreational-sea-angling-in-wales\\_-\\_nrw-evidence-report-455.pdf](https://naturalresources.wales/media/694733/impacts-of-recreational-sea-angling-in-wales_-_nrw-evidence-report-455.pdf) [Accessed April 2024]

<sup>52</sup> Welsh Government (2023) *Road lengths and conditions: April 2022 to March 2023* Available at <https://www.gov.wales/road-lengths-and-conditions-april-2022-march-2023-html> [Accessed June 2024]

<sup>53</sup> Welsh Government (2023) *Road lengths and conditions: April 2022 to March 2023*. Available online: <https://www.gov.wales/road-lengths-and-conditions-april-2022-march-2023-html#:~:text=Contact%20details-.Main%20points,new%20roads%20and%20network%20reviews>. [Accessed April 2024]

In 2022, the total volume of motorised traffic in Wales was equivalent to 29.2 billion vehicle kilometres. This is equivalent to 9,403 vehicle kilometres (5,755 miles) per person. Most of the traffic (63%) was recorded on major roads (motorways or A roads) and the remaining 37% of traffic was on minor roads – i.e., B, C and unclassified roads. Since 1993, traffic volume on major roads has increased by 35.3% and traffic volume on minor roads has increased by 27.1%.

Vehicle movements are essential to everyday operations within DCWW. Company owned office and transport fleet contribute to DCWW's gross annual operational greenhouse gas emissions. In the accounting year 2021 to 2022 a small rise in transport emissions over the previous year was identified<sup>54</sup>.

### *Welsh Language*

At the 2021 Census, 17.9% (538,300) of people living in Wales aged 3 and over could understand, speak, read or write Welsh. All local authorities saw a decrease in the percentage of children aged 3 to 15 reported as being able to speak Welsh between 2011 and 2021. The decreases tended to be larger in areas with lower concentrations of Welsh speakers, such as in Blaenau Gwent, Newport and Torfaen, whilst Gwynedd had the highest percentage at 66.4%<sup>55</sup>.

The percentage of people who could only understand spoken Welsh dropped slightly from 5.3% in 2011 to 5.2% in 2021. This decline is much smaller compared to the decrease in people aged three years or older who can speak Welsh. In 2021, 74.8% of the population had no ability to understand, speak, read, or write Welsh, which is up from 73.3% in 2011<sup>56</sup>.

All DCWW publications are bilingual and there is a dedicated Welsh language customer telephone line.

#### *2.2.6.2 Future Baseline*

Population demographics within Wales are likely to continue evolving, particularly towards an increasing ageing population, with reduced occupancy rates per household. Further to this, increased investment and economic development in the region may slow outward migration in the long-term and subsequently the population of the region is set to increase in line with national trends. As illustrated in **Figure 2-5**, this is projected to result in a 10.2% population increase from 3.1 million in 2021 to 3.4 million by 2046<sup>57</sup>. These demographic shifts will have significant implications for regional planning and resource allocation, necessitating proactive measures to accommodate the growing and ageing population.

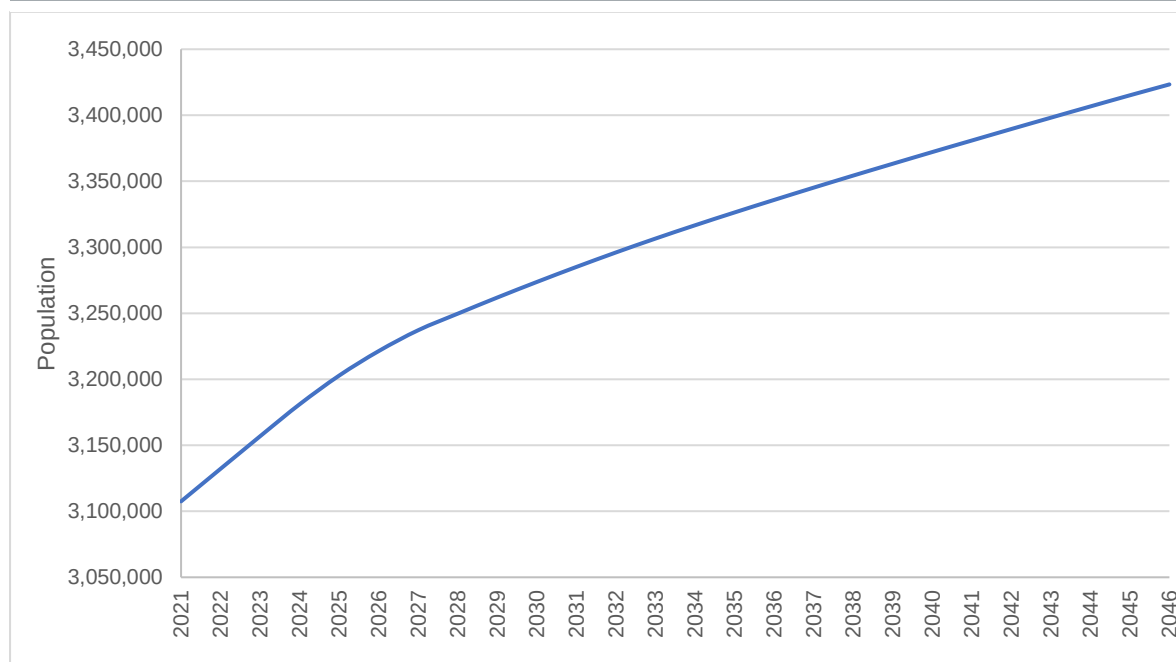
<sup>54</sup> DCWW (2023) *DCWW Report and Accounts 2022 - 2023*. Available online: <https://corporate.dwrwymru.com/en/library/group-annual-report-and-accounts> [Accessed April 2024]

<sup>55</sup> Welsh Government (2022) *Welsh language in Wales (Census 2021)*. Available online: <https://www.gov.wales/welsh-language-wales-census-2021-html> [Accessed April 2024]

<sup>56</sup> Welsh Government (2022) *Welsh language in Wales (Census 2021)* Available at <https://www.gov.wales/welsh-language-wales-census-2021-html> [Accessed June 2024]

<sup>57</sup> ONS, Stats Wales (2024) *2021-based interim national population projections for Wales, 2021-2046*. Available online: <https://stats.wales.gov.wales/Catalogue/Population-and-Migration/Population/Projections/National/2021-based> [Accessed May 2024]

Figure 2-5 Projected Population Change for Wales 2021-2046



As part of the Well-being of Future Generations Act in Wales, Welsh Ministers have a duty to publish a Future Trends Report every five years which contains the likely future trends in the economic, social, environmental and cultural well-being of Wales. The latest report was produced in 2021 and concludes the following trends in relation to population and human health in Wales:

- continued decrease in mortality and fertility, resulting in an increasing aging population;
- life expectancy will continue to increase, although the rate of increase has slowed over the last 10 years;
- The number of households is expected to increase steadily over the next 20 years;
- Increases in one-person households by over 10,000 between 2020-2043;
- Increase in net-migration;
- Health inequalities are widening;
- Increase in number of Welsh speakers, in line with the Government's target to reach 1 million by 2050; and,
- The number of young people not in education, training or employment has been falling over the past decade, but the rate of decrease has reduced in recent years.

Recognising the impact of deprivation upon some household's ability to pay their water bills, DCWW's social tariff called 'HelpU' helps the most disadvantaged customers. The current HelpU tariff is capped at £290.03 annually<sup>58</sup>.

### 2.2.6.3 Key Issues

The key issues relevant to the Drought Plan arising from the analysis of the human environment baseline are:

- The need to ensure that the water requirements of people and visitors can be met at all times, in a sustainable way;

<sup>58</sup> DCWW (2024) HelpU tariff. Availability online: [https://www.dwrcymru.com/en/support-with-bills/helpu-tariff#:~:text=How%20does%20it%20work%3F,%2C%20%C2%A3173.51%20for%20sewerage\).](https://www.dwrcymru.com/en/support-with-bills/helpu-tariff#:~:text=How%20does%20it%20work%3F,%2C%20%C2%A3173.51%20for%20sewerage).)



- The need to ensure that water supplies remain affordable, in particular for deprived or vulnerable communities;
- The need to ensure that the measures contained within the Drought Plan do not negatively affect the health and well-being of the community;
- The need to accommodate an increasing population whilst ensuring the continued provision of essential services including water supply;
- The need to ensure that the population including vulnerable people are not detrimentally affected by implementation of the Drought Plan;
- The need to ensure that the Drought Plan does not have a negative economic impact; and
- The need to ensure public awareness of both forthcoming and existing drought conditions in order to maintain resilient, reliable public water supplies without the need for emergency drought measures.

## 2.2.7 Material Assets and Resource Use

### 2.2.7.1 Baseline

#### DCWW Assets

In 2023 DCWW supplied water to a population of 3.1 million and 1.4 million household customers. To facilitate this, DCWW manages and/or operates a large network of infrastructure assets including<sup>59</sup>:

- Over 26,500km of water mains;
- Over 30,000km of sewers;
- Over 800 wastewater treatment works;
- Looking after over 90 reservoirs; and
- Approximately 40,000 hectares of land, much of which has high nature conservation and recreational value.
- DCWW's landholding includes Public Rights of Way (PRoW) network along with access infrastructure e.g., footbridges, gates and stiles, also cycle paths and permissive routes. These access opportunities in Wales are a significant wellbeing resource for residents and visitors, enabling access to our cherished landscapes and nature.

Wales' topography means that for planning purposes DCWW's supply area is split into 23 WRZs. The landscape means that each of these zones is essentially self-contained with only limited opportunity to transfer water across zonal boundaries under normal operating conditions. This reduces flexibility in managing potential drought impacts and may necessitate the implementation of local measures, even in cases where Wales's overall water resource situation is favourable<sup>60</sup>.

The geographical variation within the DCWW area results in regional variation in water supplies. The bulk of the water supply comes from impounding reservoirs, although DCWW also draws substantial quantities from lowland river sources. These river sources include the Rivers Wye and Usk in southeast Wales, the Rivers Tywi, Cleddau, and Teifi in southwest Wales, and the River Dee in north Wales. Groundwater contributes less than 5% of the overall supply at a company level, but it may constitute the entire supply at a local level<sup>61</sup>.

#### Water Demand

On average, DCWW supplies around 850Ml/d to its customers. Approximately 80% of the water demand originates from the major urban centres and towns in South Wales, including Cardiff, Swansea,

<sup>59</sup> DCWW (2024) *About us*. Available online: <https://corporate.dwrcymru.com/en/about-us> [Accessed April 2024]

<sup>60</sup> DCWW (2020) *Drought Plan 2020*. Available online: <https://www.dwrcymru.com/en/our-services/water/water-resources/final-drought-plan-2020> [Accessed April 2024]

Newport, Bridgend, Carmarthen, and the adjacent Valleys<sup>61</sup>. Typically, water demand increases by approximately 15 to 20 percent during the summer months. However, during periods of extreme weather conditions such as prolonged hot summers or rapid thaws following freezing weather, the demands on supply systems can surge by over 25 percent. In certain localised areas, the increase can be even higher.

DCWW has a number of small external water imports/exports with Severn Trent Water and Hafren Dyfrdwy, where it is more cost-effective to utilise external supplies rather than extend the existing network<sup>62</sup>.

### Leakage

DCWW reported total leakage at 251.8MI/d in 2024<sup>63</sup>. Leakage levels are affected by a number of factors including<sup>64</sup>:

- Corrosion or degradation of pipes, fittings, or seals, which may occur more rapidly in aggressive soil conditions externally or internally due to water quality issues.
- Substandard installation practices leading to weak joints or other vulnerable points.
- Thermal expansion and contraction of pipes, potentially resulting in the opening of joints or pipe cracks.
- Pressurised water networks, where higher pressures and pressure surges can contribute to long-term leakage.
- Ground movements and stresses imposed on underground pipes due to weather conditions, climate variations, or traffic loads.
- Damage caused by third parties.
- Structural failures of pipes and fittings, often resulting from a combination of the aforementioned factors.

DCWW's leakage strategy is geared towards achieving a 15% reduction in leakage by 2025, followed by an additional 10% reduction from the 2024-25 level over the 2025-2030 period. Furthermore, the goal is to achieve a 50% reduction in leakage levels, relative to a 2017/18 baseline, by 2050.

### Water Efficiency

To meet the 110 l/p/d per capita consumption (PCC) target, DCWW recognises the use of physical water efficiency measures—such as water-saving devices, home audits, fixing leaky loos, and greywater recycling/rainwater harvesting. These measures, however, would be too costly if relied upon alone. Alongside this, the company plans to implement its 'Smart' metering programme' to achieve this target. Through its metering strategy, DCWW aims to increase the level of metering to 79% by the end of AMP8 and 96% by 2050, resulting in reduction of the overall demand by 37.23 MI/d by the end of AMP8 and 96.01 MI/d by 2050<sup>65</sup>.

### Energy Use

The supply of drinking water and the removal and treatment of wastewater requires energy. Topography and volumes can increase or decrease this energy demand further. The topography and size of the

<sup>61</sup> DCWW (2023) *revised Draft Water Resources Management Plan 2024* Available at <https://www.dwrcymru.com/-/media/project/files/page-documents/corporate/environment/water-resources/revised-draft-wrmp-august-2023/revised-dwrmp24-executive-summary.ashx> [Accessed June 2024]

<sup>62</sup> DCWW (2019) *Environmental Report*. Available online: <https://www.dwrcymru.com/en/our-services/water/water-resources/final-drought-plan-2020> [Accessed April 2024]

<sup>63</sup> DCWW (2024) *Interim Report and Accounts for the six months ended 30 September 2024*. Available online: <https://corporate.dwrcymru.com/en/library/group-annual-report-and-accounts> [Accessed November 2024]

<sup>64</sup> Water UK (2022) *A Leakage Routemap to 2050* Available at <https://www.water.org.uk/wp-content/uploads/2022/03/Water-UK-A-leakage-Routemap-to-2050.pdf> [Accessed June 2024]

<sup>65</sup> DCWW (2023) *Revised Draft Water Resources Management Plan 2024*. Available online: <https://www.dwrcymru.com/-/media/Project/Files/Page-Documents/Our-Services/Wastewater/DWMP/English/The-Main-Plan.ashx> [Accessed April 2024]

DCWW area means water and wastewater have to be pumped over large areas, and DCWW is one of the largest energy users in Wales<sup>66</sup>. In 2021, DCWW used 500 GWh of electricity to pump and treat wastewater resulting in an annual bill of £46 million<sup>67</sup>. DCWW currently generate 22% of their own energy needs through wind, hydropower, solar and advanced anaerobic digestion, with the remaining procured from 100% renewable energy sources<sup>68</sup>.

From 2005 to 2019, total energy consumption in Wales consistently decreased annually, dropping from 109.9 TWh to 92.8 TWh by 2019, marking a 16% reduction over a span of 14 years. Notably, this reduction surpassed that of England by 2% during the same timeframe<sup>69</sup>. The Welsh Government has a target for Wales to meet the equivalent of 70% of its electricity demand from Welsh renewable electricity sources by 2030 and 100% by 2035. In 2022, this figure stood at an estimated 59%, up from 55% in 2021 and 19% a decade ago<sup>70</sup>.

In Wales, 40% of the total energy consumption is allocated to providing heat for homes, businesses, and industry, which includes the use of electricity for heating purposes. Following this, transport accounts for the second-largest share, amounting to 23.4 TWh. The third major category encompasses electrical non-heating use, which includes electricity-powered appliances, lighting, and cooking, constituting approximately 9% of energy consumption in Wales. Finally, a fourth category labelled as 'other' encompasses non-domestic fuel consumption, such as petroleum used for industrial or agricultural purposes (**Figure 2-6**)<sup>6971</sup>.

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<sup>66</sup>Glas Cymru (2023) *Glas Cymru Annual Report and Accounts 2022-2023*. Available online: <https://corporate.dwrcymru.com/en/library/group-annual-report-and-accounts> [Accessed April 2024]

<sup>67</sup> DCWW (2024) *Powering a Cleaner Future*. Available online: <https://corporate.dwrcymru.com/en/journey-to-zero/powering-a-cleaner-future#:~:text=Powering%20a-,Cleaner%20Future,and%20treat%20water%20and%20wastewater>. [Accessed April 2024]

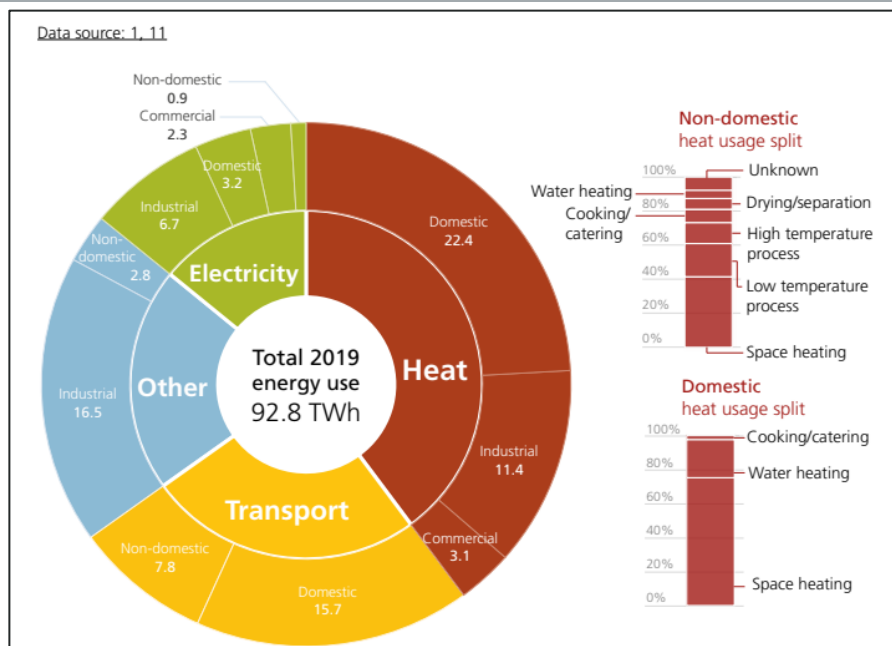
<sup>68</sup> DCWW (2024) *Interim Report and Accounts for the six months ended 30 September 2024*. Available online: <https://corporate.dwrcymru.com/en/library/group-annual-report-and-accounts> [Accessed November 2024]

<sup>69</sup> Welsh Government (2022) *Energy Use in Wales Second Edition* Available at <https://www.gov.wales/sites/default/files/publications/2022-06/energy-use-wales-report.pdf> [Accessed May 2024]

<sup>70</sup> Welsh Government (2022) *Energy Generation in Wales 2022* Available at <https://www.gov.wales/sites/default/files/publications/2023-11/energy-generation-in-wales-2022.pdf> [Accessed June 2024]

<sup>71</sup>Welsh Government (2022) *Energy Use in Wales Second Edition* Available at <https://www.gov.wales/sites/default/files/publications/2022-06/energy-use-wales-report.pdf> [Accessed May 2024]



Figure 2-6 Annual energy in Wales broken down by use, 2019 (TWh)<sup>72</sup>

Through strategic investments in renewable energy generation and energy efficiency initiatives, DCWW has developed a diverse portfolio comprising over 70 assets. These assets include hydroelectric power facilities, combined heat and power (CHP) engines, as well as solar and wind installations. Collectively, these initiatives generate a substantial amount of electricity, equivalent to powering more than 25,000 homes<sup>73</sup>.

#### Resource Use and Waste

The percentage of local authority municipal waste that was reused, recycled or composted) has increased considerably during the last two decades (from around 5% in the late 1990s). The recycling rate in Wales experienced a slight uptick, rising from 65.2% in 2021-22 to 65.7% in 2022-23 (**Figure 2-8**)<sup>74</sup>, surpassing the 2019-20 target of 64% outlined in the 2021 Beyond Recycling Strategy<sup>75</sup>. This target must be achieved by all local authorities annually until 2024-25. In 2022-23, 1.4 million tonnes of local authority municipal waste were generated, marking a 7% decrease from the previous year and the lowest figure recorded since 2001-02. Additionally, residual household waste per person decreased by 5.5%, dropping from 182kg in 2021-22 to 172kg in 2022-23 (**Figure 2-7**)<sup>76</sup>.

<sup>72</sup> Welsh Government (2022) *Energy Use in Wales Second Edition* Available at <https://www.gov.wales/sites/default/files/publications/2022-06/energy-use-wales-report.pdf> [Accessed May 2024]

<sup>73</sup> Glas Cymru (2023) *Glas Cymru Annual Report and Accounts 2022-2023*. Available online: <https://corporate.dwrcymru.com/en/library/group-annual-report-and-accounts> [Accessed April 2024]

<sup>74</sup> Welsh Government (2023) *Local Authority Municipal Waste Management, 2022-23*. Available online: <https://www.gov.wales/sites/default/files/statistics-and-research/2023-12/local-authority-municipal-waste-management-2022-to-2023.pdf> [Accessed April 2024]

<sup>75</sup> Welsh Government (2021) *Beyond Recycling*. Available online: <https://www.gov.wales/beyond-recycling> [Accessed April 2024]

<sup>76</sup> Welsh Government (2023) *Local Authority Municipal Waste Management, 2022-23*. Available online: <https://www.gov.wales/sites/default/files/statistics-and-research/2023-12/local-authority-municipal-waste-management-2022-to-2023.pdf> [Accessed April 2024]

Figure 2-8 Percentage of local authority municipal waste reused/recycled/composted by year

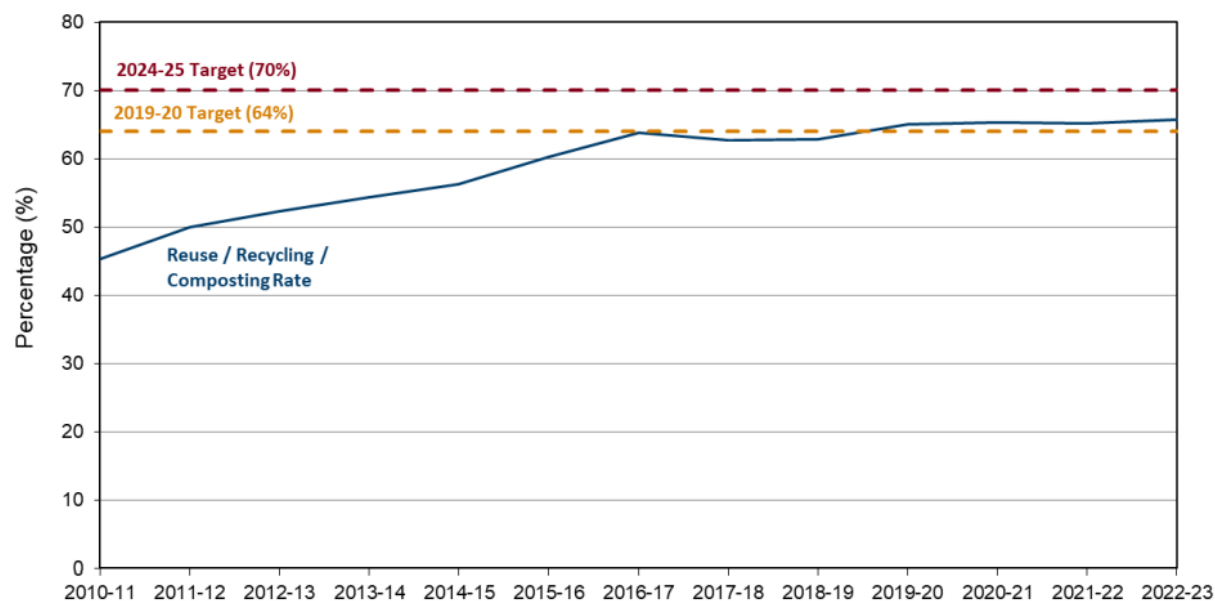
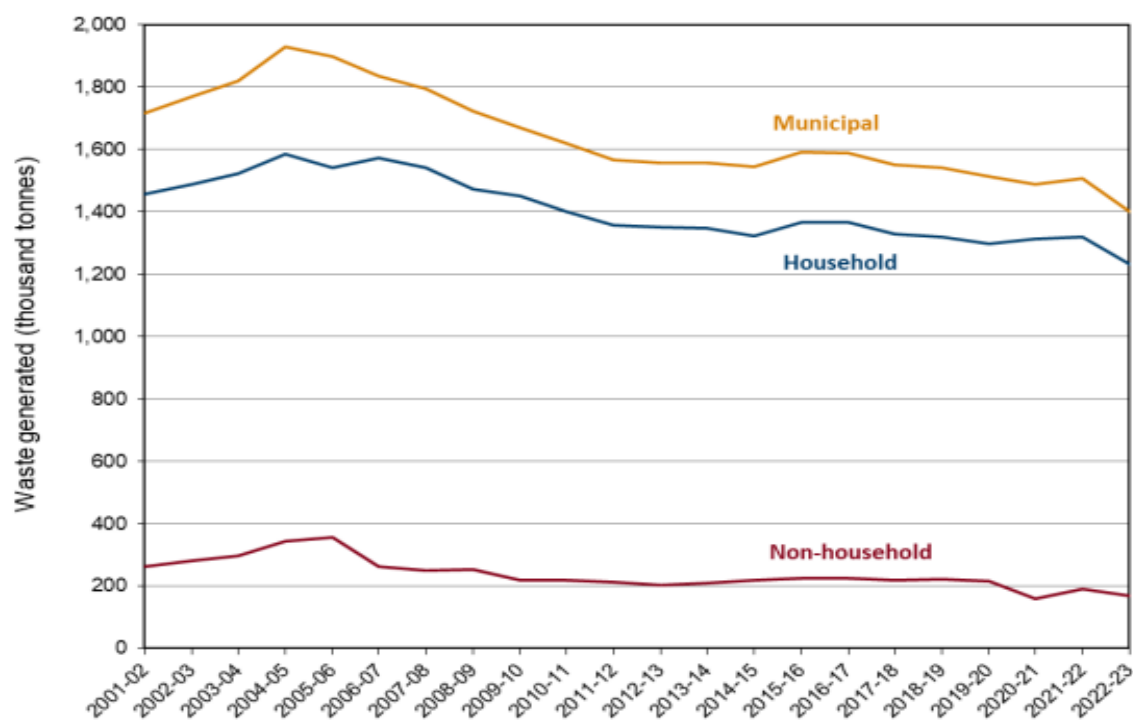


Figure 2-7 Total local authority municipal waste generated in Wales (thousand tonnes), 2001-02 to 2022-23



Operationally, DCWW requires materials in its treatment processes including a wide range of chemicals for both water and wastewater treatment. In 2023, DCWW used £21.9m worth of chemicals in its operations<sup>77</sup>. DCWW also produces waste mainly in the form of 'sludge' through the treatment of water

<sup>77</sup> DCWW (2023) DCWW Report and Accounts 2022 - 2023. Available online: <https://corporate.dwrwymru.com/en/library/group-annual-report-and-accounts> [Accessed April 2024]

for water supply (water treatment work sludge) and the treatment of wastewater (sewage sludge, or 'biosolids'). During 2015 a gas-to-grid plant was completed at the Five Fords Wastewater Treatment Works in Wrexham to enable gas created during the waste treatment process to be upgraded to bio-methane gas and then redirected into the local gas distribution network.

### 2.2.7.2 Future Baseline

DCWW are investing £3.5 billion during 2025-30 to maintain and improve the extensive network of DCWW assets; 68% more than the investment planned for the period 2020-25<sup>78</sup>.

According to the WRMP, DCWW projects that demand during a dry year will reduce from 868.47 Ml/d in 2019/20 to 830.00 Ml/d in 2049/50. Table 2-5 shows the volume of climate change impact upon demand included within the demand forecasts for DCWW's Final WRMP 2024. DCWW estimate that just 1.19% of forecasted demand in 2049/50 is due to climate change.

Table 2-5: Volume of water demand in the baseline (dry year) forecast due to climate change (CC)<sup>79</sup>

| Component                       | 2019-20 | 2020-21 | 2024-25 | 2029-30 | 2034-35 | 2039-40 | 2044-45 | 2049-50 |
|---------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| <b>Demand (Ml/d)</b>            | 868.47  | 884.73  | 811.06  | 815.21  | 816.20  | 819.45  | 823.50  | 830.00  |
| <b>Vol. of Demand due to CC</b> | 0.00    | 0.21    | 1.14    | 2.27    | 3.41    | 4.56    | 5.99    | 7.46    |
| <b>% Demand due to CC</b>       | 0.00    | 0.03    | 0.19    | 0.37    | 0.56    | 0.74    | 0.96    | 1.19    |

Even with the reduction in demand predicted from 2019 to 2050, additional supply side investment is required in two WRZs to achieve target levels in drought resilience; the SEWCUS (deficit up to 44Ml/d) and Tywi Gower (deficit up to 28Ml/d) zones. The Lleyn Harlech-Barmouth WRZ also experiences a small deficit (up to 0.5Ml/d) although this is forecast to occur after 2040.

Wales' energy consumption has declined since 2005 and this trend is expected to continue due to energy efficiency improvements (although an increase in economic activity and fluctuations in oil and gas prices may affect this). It is expected that there will be an increase in the use of renewable energy in Wales<sup>80</sup>. In this wider context DCWW plans to significantly increase its renewable energy generation, targeting to be 35% self-sufficient by 2025 and to be a carbon neutral business by 2040<sup>81</sup>.

<sup>78</sup> DCWW (2023) *PR24 Business Plan 2025-30*. Available online: <https://corporate.dwcymru.com/en/library/pr24-reports> [Accessed June 2024]

<sup>79</sup> DCWW (2024) *Final Water Resources Management Plan 2024*, November 2024. Available online: <https://www.dwcymru.com/en/our-services/water/water-resources/final-water-resources-management-plan-2024> [Accessed November 2024]

<sup>80</sup> Welsh Government (2024) *Energy Use in Wales Second Edition*. Available online: <https://www.gov.wales/sites/default/files/publications/2022-06/energy-use-wales-report.pdf> . [Accessed April 2024]

<sup>81</sup> DCWW (2023) *DCWW Report and Accounts 2022 - 2023*. Available online: <https://corporate.dwcymru.com/en/library/group-annual-report-and-accounts> [Accessed April 2024]

In 2021, the Welsh Government launched the 'Beyond Recycling' strategy<sup>82</sup>, which sets out how Wales aims to move to a more circular economy and become a zero waste nation by 2050. The strategy includes interim targets for 2030 such as:

- 92% reduction in waste sector emissions;
- 75% household, municipal and industrial recycling rate;
- 33% reduction in waste produced;
- Carbon neutral public sector; and,
- 60% reduction in avoidable food waste

At present, Wales recycle 67% of industrial and commercial waste and 87% of all construction and demolition waste. In 2022, 56.9% of all waste was recycled in Wales, compared to 44.1% in the UK<sup>83</sup>. Wales continues to lead the UK in recycling municipal waste, being the only country with a recycling rate higher than 50%<sup>84</sup>.

### 2.2.7.3 Key Issues

The key issues relevant to the drought plan arising from the analysis of the material assets and resource use baseline are:

- The need to minimise the demand for water resources through water efficiency measures (including metering) and the reduction of leakage in the region;
- The need to reduce energy consumption;
- The need to ensure the sustainable and efficient use of resources such as construction materials; and
- The need to minimise waste arisings, promote reuse, recovery and recycling and minimise the impact of waste on the environment and communities.

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<sup>82</sup> Welsh Government (2021) Beyond Recycling: A strategy to make the circular economy in Wales a reality. Available online: <https://www.gov.wales/sites/default/files/publications/2021-03/beyond-recycling-strategy-document.pdf> [Accessed November 2024]

<sup>83</sup> Defra (2022) *WasteDataFlow*, Defra Statistics. Available online: <https://www.gov.uk/government/statistics/uk-waste-data/uk-statistics-on-waste> [Accessed November 2024]

<sup>84</sup> Welsh Government (2023) *Local Authority Municipal Waste Management, 2022-23*. Available online: <https://www.gov.wales/sites/default/files/statistics-and-research/2023-12/local-authority-municipal-waste-management-2022-to-2023.pdf> [Accessed April 2024].

## 2.2.8 Water

### 2.2.8.1 Baseline

#### *Rivers, Lakes, Groundwater*

**Table 2-6, Table 2-7 and Table 2-8** show the total number of waterbodies in the Dee, Western Wales and Severn River Basin Districts (RBDs). Of the 94 water bodies in the Dee, 83 lie in Wales. Water is abstracted from water bodies for many purposes, including public water supply, agriculture, industry and electricity generation. In Wales, most of the water licensed for abstraction is from surface water rather than groundwater. Excluding the water utilised within the energy sector, primarily for hydropower, which is immediately returned to the environment, a significant volume of water abstracted in Wales is dedicated to public water supply, with industrial usage constituting a notable component<sup>85</sup>.

**Table 2-6: Number and types of water bodies in the baseline third cycle RBMP (2021-27) for Western Wales RBD<sup>86</sup>**

| Water body category | Natural | Artificial | Heavily modified | Total |
|---------------------|---------|------------|------------------|-------|
| River*              | 378     | 3          | 48               | 429   |
| Lake                | 24      | 2          | 35               | 61    |
| Coastal             | 18      | 0          | 5                | 23    |
| Estuarine           | 18      | 0          | 10               | 28    |
| Groundwater         | 25      | 0          | 0                | 25    |
| Total               | 463     | 4          | 99               | 566   |

\* River water bodies includes canals and surface water transfers.

**Table 2-7: Number and types of water bodies in the baseline third cycle RBMP (2021-27) for Dee RBD<sup>87</sup>**

| Water body category | Natural | Heavily modified | Total |
|---------------------|---------|------------------|-------|
| River*              | 50      | 21               | 71    |
| Lake                | 4       | 13               | 17    |
| Coastal             | 0       | 0                | 0     |
| Estuarine           | 0       | 1                | 1     |
| Groundwater         | 5       | 0                | 5     |
| Total               | 59      | 35               | 94    |

\* River water bodies includes canals and surface water transfers.

**Table 2-8: Number and types of water bodies in the baseline third cycle RBMP (2021-27) for the Welsh part of the Severn RBD<sup>88</sup>**

| Water body category | Natural | Artificial | Heavily modified | Total |
|---------------------|---------|------------|------------------|-------|
| River*              | 202     | 11         | 23               | 236   |
| Lake                | 4       | 0          | 32               | 36    |
| Coastal             | 0       | 0          | 0                | 0     |

<sup>85</sup> Welsh Government (2015) *Water Strategy for Wales: Supporting the sustainable management of our natural resources*. Available online: <https://www.gov.wales/sites/default/files/publications/2019-06/water-strategy.pdf> [Accessed April 2024].

<sup>86</sup> NRW (2022) *Western Wales River Basin Management Plan 2021 – 2027 Summary*. Available online: [https://naturalresources.wales/media/695227/western-wales-rbmp-2021\\_2027-summary.pdf](https://naturalresources.wales/media/695227/western-wales-rbmp-2021_2027-summary.pdf) [Accessed April 2024].

<sup>87</sup> NRW (2022) *Dee River Basin Management Plan 2021 – 2027 Summary*. Available online: [https://naturalresources.wales/media/695219/dee-rbmp-2021\\_2027-summary.pdf](https://naturalresources.wales/media/695219/dee-rbmp-2021_2027-summary.pdf) [Accessed April 2024].

<sup>88</sup> NRW (2022) *Western Wales River Basin Management Plan 2021 – 2027 Summary*. Available online: [https://naturalresources.wales/media/695227/western-wales-rbmp-2021\\_2027-summary.pdf](https://naturalresources.wales/media/695227/western-wales-rbmp-2021_2027-summary.pdf) [Accessed April 2024].

| Water body category | Natural | Artificial | Heavily modified | Total |
|---------------------|---------|------------|------------------|-------|
| Estuarine           | 1       | 0          | 2                | 3     |
| Groundwater         | 9       | -          | -                | 9     |
| Total               | 216     | 11         | 57               | 284   |

\* River water bodies includes canals and surface water transfers.

Rainfall patterns in Wales exhibit considerable variability, with the most significant average annual totals observed in the central upland region spanning from Eryri to the Bannau Brycheiniog. Eryri stands out as the wettest area, with average annual totals surpassing 3000mm, akin to precipitation levels in the English Lake District or the Western Highlands of Scotland. Conversely, inland areas, especially those near the border with England, experience drier conditions, receiving less than 1000mm of rainfall per year<sup>89</sup>. Evaporation throughout the region is also similarly high, reaching over 600mm per year (actual evaporation) across some parts, which offsets the high rainfall to some degree<sup>90</sup>. Rainfall patterns combined with sources of demand drive the nature of the water resource system operated by DCWW. DCWW estimates that it abstracts just 3% of effective rainfall in Wales for public water supply in contrast to the rest of the UK where, in some areas, up to 55% of rainfall is used for public water supply.

Most of the water that DCWW abstracts is supplied from impounding reservoirs, although significant volumes are abstracted from lowland river sources such as those on the Rivers Wye and Usk in south east Wales, the River Tywi in south west Wales and the River Dee in north Wales. Groundwater accounts for less than 5% of water supplies by DCWW but at a local level, may be the whole supply<sup>91</sup>. River abstractions are the dominant supply in the Tywyn Aberdyfi, Llyswen, Hereford, Whitbourne, Ross on Wye, and Monmouth zones. Reservoir supplies dominate the rest of DCWW's area, with the remainder drawn from the ground through springs, wells and boreholes. There are groundwater sources in the Pilleth, Brecon, Clwyd Coastal, Pembrokeshire, Hereford, SEWCUS, North Ceredigion and Vowchurch zones.

### Water Availability

NRW has produced a series of Catchment Abstraction Management Strategies (CAMS), now referred to as Abstraction Licensing Strategies (ALS), for the catchments within Wales and those that cross the England / Wales border. These ALS set out how water resources will be managed in each catchment and provide information on how existing abstraction licences are managed and the availability of water for further abstraction. Within each ALS, river flows and groundwater levels are monitored at Assessment Points (significant points on rivers) and assessed alongside the amount of water which has been abstracted on average over the previous six years and the situation if all abstraction licences were used to full capacity. This data is used to determine the water availability for each water body. Water availability falls into the following categories:

- **Water available for licensing:** There is more water than required to meet the needs of the environment. New licences can be considered depending on local and downstream impacts;
- **Restricted water available for licensing:** If all licensed water is abstracted there will not be enough water left for the needs of the environment. No new consumptive licences would be granted and restrictions may be in place. Trading from an existing licence holder can occur; and

<sup>89</sup> Met Office (2024) *Wales: Climate*. Available online: <https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/weather/regional-climates/wales-climate-met-office.pdf> [Accessed July 2024].

<sup>90</sup> Met Office (2024) *Wales: Climate*. Available online: <https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/weather/regional-climates/wales-climate-met-office.pdf> [Accessed July 2024].

<sup>91</sup> DCWW (2023) *Revised Draft Water Resources Management Plan 2024*. Available online: <https://www.dwrwymru.com/-/media/Project/Files/Page-Documents/Our-Services/Wastewater/DWMP/English/The-Main-Plan.ashx> [Accessed April 2024]



- **Water not available for licensing:** Water body flows are below the indicative flow requirement to help support Good Ecological Status (as required by the WFD Regulations). No further consumptive licences will be granted. Trading from an existing licence holder can occur.

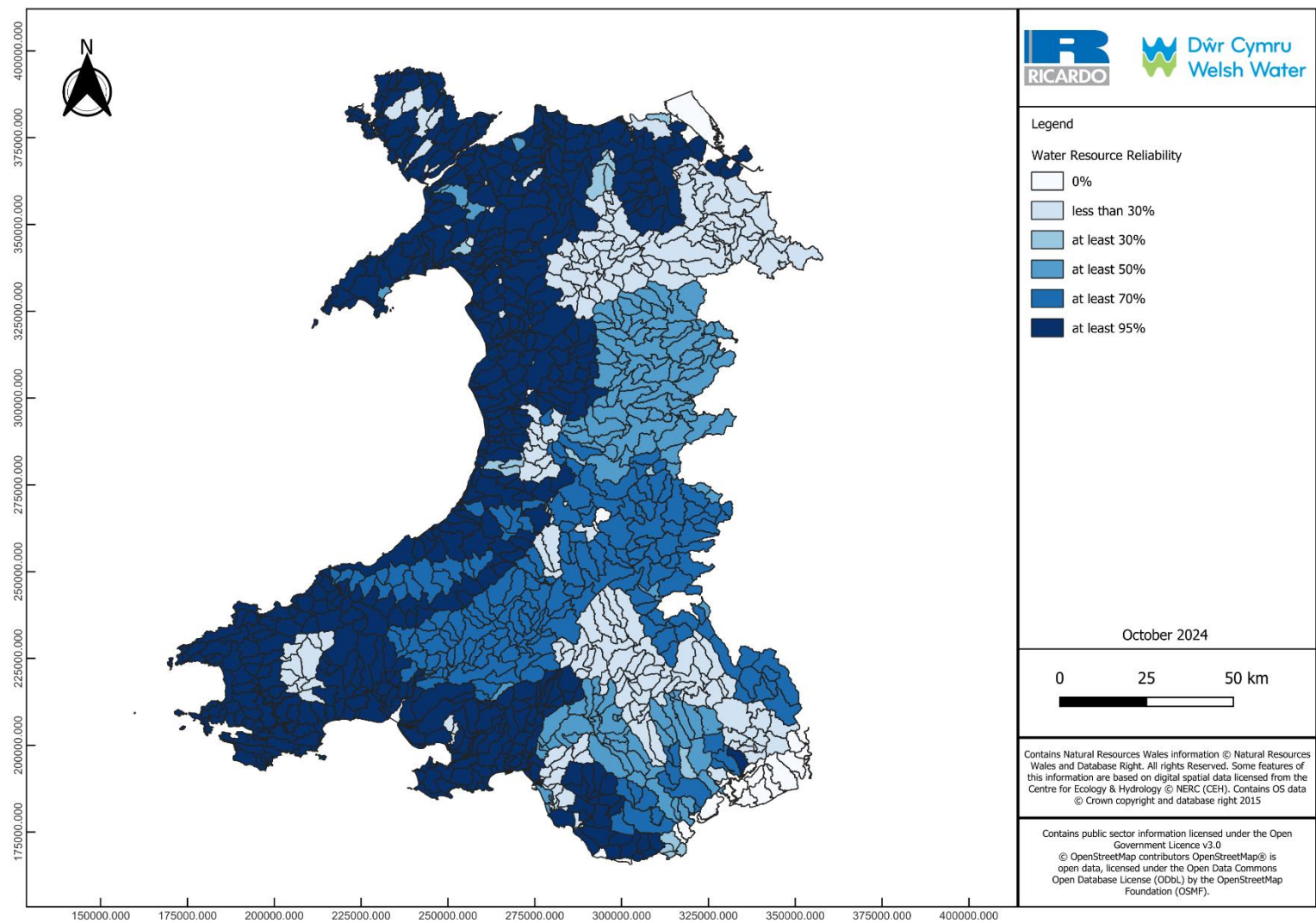
The most up to date ALS for catchment in Wales are available to view and download via the NRW website<sup>92</sup>. **Figure 2-9** indicates the percentage of time additional consumptive abstraction may be available and what this means for abstraction licensing. About 48 per cent of water bodies in Wales can provide a reliable source of water for new abstractions for at least 95 per cent of the time. Approximately 23 per cent of water bodies in Wales can only provide water for new abstractions 30 per cent or less of the time (less than 100 days a year)<sup>93</sup>.

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<sup>92</sup> Abstraction Licensing Strategies (various) Available to download at: <https://naturalresources.wales/about-us/what-we-do/our-roles-and-responsibilities/water/water-available-in-our-catchments/?lang=en> [Accessed November 2024]

<sup>93</sup> Welsh Government (2022) *Water Resource Reliability* Data Available at [https://datamap.gov.wales/layers/geonode:nrw\\_water\\_resource\\_reliability](https://datamap.gov.wales/layers/geonode:nrw_water_resource_reliability)

Figure 2-9 Water Resource Availability: percentage of time additional consumptive abstraction may be available



### *Sustainability Reductions - Review of Consents*

Under the Habitats Regulations, Natural Resources Wales and the Environment Agency completed a review of all the consents (the RoC) that they regulated to ensure there were no detrimental impacts on the conservation interests in designated sites including SPAs and SACs. Discharge consents and water abstraction licences were included within this review.

The presence of a large number of SPAs and SACs in and adjacent to Welsh Water's supply area meant that a number of Welsh Water abstraction licences required modification in order to achieve the desired environmental outcomes for the primarily riverine European-designated sites (SACs) (River Wye, River Usk, River Teifi, River Towy, Cleddau Rivers, Rhinog, Migneint-Arenig-Dduallt, Afon Gwyrfai and Llyn Cwellyn). The negative impacts of the licences on designated sites, as determined by NRW, included impacts on river flow and lake levels, fish entrainment through intake structures, groundwater level impacts and obstructions to fish passage.

#### *NRW's National Environment Programme (NEP)*

NRW's NEP and the equivalent WINEP (Water Industry National Environment Programme) in England, identify the investigations and subsequent changes that need to be made to abstraction licences to meet environmental obligations. The NEP requires water companies to address these actions in order to contribute towards meeting their statutory environmental obligations, non-statutory environmental requirements or delivery against a water company's statutory functions.

The NEP in AMP6 and AMP7 resulted in significant expenditure to manage the impact of reductions in licence volumes at a number of DCWW's river abstractions, driven by requirements of the Habitats Regulations.

In England, the EA has defined a policy whereby it seeks to limit abstraction licence quantities to that used over the recent past to meet the 'No Deterioration' requirements of the Water Framework Directive legislation, particularly under a changing climate. NRW are taking a different approach in Wales, and DCWW have committed to work with them, through research in AMP8, to understand the potential future impact on river flows under climate change and how this may affect ecological needs.

DCWW has recently (October 2023) submitted its PR24 investment plan to Ofwat which includes total expenditure of £5,627 million and average annual customer bills of £602 by 2030<sup>94</sup>. This takes into account DCWW's inclusion of additional environmental expenditure reflecting the latest NEP and updated guidance.

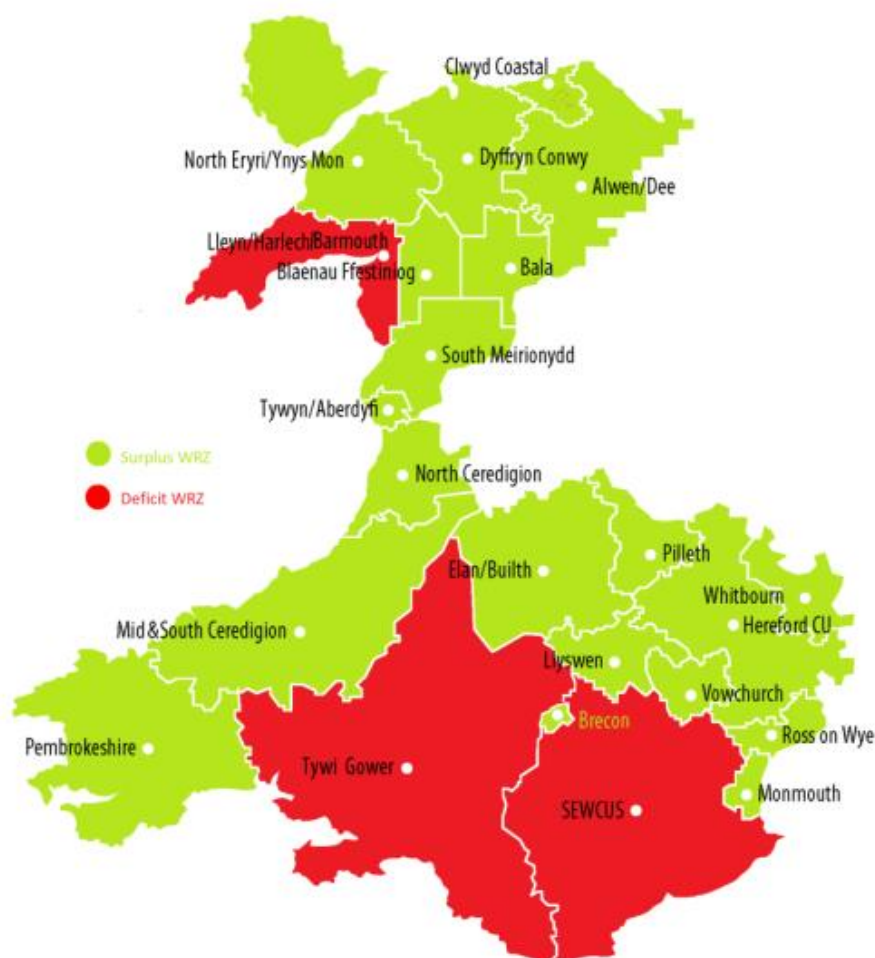
### *Supply and Demand*

Welsh Water forecasts the long term water supply and demand balance for all of its the 23 WRZs. To account for future uncertainties, an additional amount of water is included in its assessment called 'Target Headroom'. For the WRZ to have a 'surplus', the water available for supply must be equal to or greater than the sum of the total forecast demand plus the target headroom. Where a shortfall against demand plus target headroom occurs (i.e., the WRZ has a supply demand deficit) measures are required to address the shortfall. These could include measures to increase supply such as new abstractions or measures to reduce demand through additional leakage detection. DCWW's Final Water Resources Management Plan 2024 presents the outcome of this assessment and identifies that three of the 23 WRZs are forecast to have a supply demand deficit over the planning period to 2050 unless management interventions such as demand management measures or new resources are implemented. The three WRZs are Lleyn Harlech/Barmouth, Tywi Gower and SEWCUS and are shown in red on **Figure 2-10**. The Water Resources Management Plan 2024 ensures that a surplus of supply over demand is maintained in all WRZs.

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<sup>94</sup> DCWW (2024) PR24 Business Plan 2025-30 Available at <https://corporate.dwrcymru.com/en/library/pr24-reports> [Accessed October 2024]

Figure 2-10 Supply-Demand Balance in Wales, according to DCWW's WRMP24



### Flood Risk

Flood risk poses a considerable challenge in Wales, particularly due to the presence of numerous urban settlements situated alongside rivers, streams, and floodplains. Additionally, the loss of natural coastal flood defences resulting from coastal erosion, habitat loss, and development pressures exacerbates this issue. The anticipated impacts of climate change, including more frequent and severe extreme weather events, are expected to further escalate the frequency and severity of flooding. Moreover, rising sea levels compound these challenges, posing threats to Wales' natural resources, economy, and communities.

The second National Strategy on Flood and Coastal Erosion Risk Management (FCERM) for Wales replaces the 2011 strategy, providing a framework for managing flood and coastal erosion risks over the next decade. Prepared under the Flood and Water Management Act 2010, the strategy outlines clear objectives and measures for partners to address these risks, while incorporating long-term planning to tackle climate change. It aligns with key legislation such as the Well-being of Future Generations (Wales) Act 2015 and the Environment (Wales) Act 2016, promoting sustainable natural resource management, biodiversity enhancement, and carbon reduction. Flood Risk Management Plans (FRMPs) and Shoreline Management Plans (SMP) were prepared by NRW and the Environment Agency setting out what measures will be taken to help manage the risk of flooding to people, the

environment and economic activity. **Table 2-9** provides a summary of flood risk to properties and people from rivers and the sea based on the information contained in the published FRMP for Wales<sup>95</sup>.

**Table 2-9: Properties and people at risk from flooding from rivers and the sea in Wales**

| Risk of flooding from rivers  |                            |                                            |                                                |                                   |
|-------------------------------|----------------------------|--------------------------------------------|------------------------------------------------|-----------------------------------|
| Flooding from rivers          | People at risk of flooding | Residential properties at risk of flooding | Non-residential properties at risk of flooding | Key Services* at risk of flooding |
| 2020                          | 242,477                    | 77,818                                     | 12,271                                         | 1,788                             |
| 2120                          | 302,908                    | 96,385                                     | 15,191                                         | 2,225                             |
| Difference                    | +60,431                    | +18,567                                    | +2,920                                         | +437                              |
| Risk of flooding from the sea |                            |                                            |                                                |                                   |
| 2020                          | 191,055                    | 62,087                                     | 8,735                                          | 1,348                             |
| 2120                          | 286,232                    | 90,277                                     | 13,717                                         | 2,251                             |
| Difference                    | +95,177                    | +28,190                                    | +4,982                                         | +903                              |

\* Key Services include property types related to education, health services, transport, utilities and emergency services.

Local Flood Risk Maps for Wales are available online<sup>96,97,98</sup>, which incorporate the Welsh Government's Development Advice Map, in addition to separate local flood mapping for England<sup>99</sup>.

Over the first three financial years of the National Strategy for Flood and Coastal Erosion Risk Management (April 2020 to March 2023), the Welsh Government has invested over £206 million in flood and coastal erosion risk management<sup>100</sup>

Fluvial and coastal flood risk is a problem within the DCWW supply area which is pertinent as water resources infrastructure can be rendered non-operational by flooding, putting customers' water supply at risk and increasing the risk of pollution. Gwynedd has the largest number of properties at significant risk (greater than a 1 in 75 chance in any given year). This is largely because of the coastal flood risk. Over the next 100 years, it's estimated that over 2,000 properties in Wales are at risk from coastal erosion, assuming there is no active intervention<sup>101</sup>.

#### Water Quality – Rivers and Groundwaters

The Water Environment (Water Framework Directive) (England and Wales) 2017 Regulations transposed WFD into law in England and Wales. These regulations were retained in UK law after EU

<sup>95</sup> Natural Resources Wales (2023) *Natural Resources Wales Flood Risk Management Plan National overview*. Available online: <https://naturalresources.wales/media/iacpsksr/frmp-cycle-2-national-section.pdf> [Accessed April 2024]

<sup>96</sup> Natural Resources Wales (2023) *Check your flood risk by postcode*. Available online: Check your flood risk on a map (Flood Risk Assessment Wales Map) <https://naturalresources.wales/flooding/check-your-flood-risk-on-a-map-flood-risk-assessment-wales-map/?lang=en> [Accessed October 2024]

<sup>97</sup> Natural Resources Wales (2023) *Flood Map for Planning* <https://flood-map-for-planning.naturalresources.wales/> [Accessed October 2024]

<sup>98</sup> Welsh Government (2022) *Welcome to the Viewer for the Development Advice Map and the National Flood Hazard and Risk Maps*. Available online: [https://gisgeoext.cyfoethnaturiolcymru.gov.uk/Geocortex/Viewers/Html5Viewer\\_4145/index.html?viewer=FloodRisk](https://gisgeoext.cyfoethnaturiolcymru.gov.uk/Geocortex/Viewers/Html5Viewer_4145/index.html?viewer=FloodRisk) [Accessed October 2024]

<sup>99</sup> GOV.UK (2024) *Learn more about flood risk*. Available online: <https://www.gov.uk/check-long-term-flood-risk> [Accessed April 2024]

<sup>100</sup> Natural Resources Wales (2024) *Section 18 report: Flood and Coastal Erosion Risk Management in Wales 2020 – 2023*. Available online: <https://naturalresources.wales/evidence-and-data/research-and-reports/flooding-reports-evidence-and-data/flood-and-coastal-erosion-risk-management-in-wales-2020-2023/?lang=en#:~:text=Over%20the%20first%20three%20financial,East%20Rhy> [Accessed April 2024]

<sup>101</sup> Welsh Parliament (2023) *Flooding and Coastal Erosion Research Briefing*. Available at <https://research.senedd.wales/media/memlsd5c/23-24-flooding-and-coastal-erosion.pdf> [Accessed June 2024]



Exit via the EU Withdrawal Act 2018<sup>102</sup>. The Water Framework Directive Regulations (WFD Regulations) provide a mechanism for management of the water environment to ensure sustainable use of water. The Directive also seeks to protect and improve the quality, both ecological and chemical, of inland surface waters, ground waters and coastal waters. Under the WFD, River Basin Management Plans (RBMP) are prepared for each River Basin District. The Welsh Government reported on the River Basin Planning progress in 2021. In terms of the overall status across geographic Wales, approximately 40% of the 933 surface and ground water bodies are classified as being in good or better condition. This signifies a 3% enhancement compared to the assessment reported in 2015 and an 8% improvement since 2009.<sup>103</sup>

The main reasons for water body failure in Wales are pollution from abandoned mines and contaminated land, agricultural pollution, barriers to fish migration and impoundments. Sewage discharges, acidification, forestry, flood protection and land drainage, surface water drainage from urban and transport development, abstraction and industrial discharges are also factors.

The Marine Strategy Framework Directive (MSFD) has also been retained within UK law. The UK Marine Strategy is a requirement of the Marine Strategy Regulations 2010 and is derived from the MSFD. The strategy aims to protect the marine environment, prevent its decline, restore where practical and to promote the sustainable use of marine resources<sup>104</sup>. The 2019 Wales National Marine Plan is a key tool for ensuring that the targets and measures to be determined by the UK for the MSFD can be implemented<sup>105</sup>.

Bathing waters are very important for coastal communities, visitors and the economy in Wales. In 2023, 107 out of the 109 designated Welsh bathing waters met the standards outlined by the Bathing Water Regulations. Among the 109 bathing waters assessed in Wales, 80 were classified as having an Excellent standard, 20 achieved a Good standard, and 7 were categorised as meeting the minimum, Sufficient, standard. However, two bathing waters failed to meet the required standard and were assessed as Poor - Watch House Bay and Ogmere by Sea<sup>106</sup>. The Welsh Government had designated both of these for the 2023 bathing season. In 2024, a new inland Bathing Water on the River Wye, the Warren in Hay-on-Wye has been designated by Welsh Government for the 2024 bathing season<sup>107</sup>.

### *Drinking Water Quality*

Across England and Wales, water companies are subject to drinking water standards under *The Water Supply (Water Quality) Regulations 2018*. DCWW's performance against the water quality tests (known as Compliance Risk Index (CRI)) for 2022 was 5.4, which was close to the Overall performance in England and Wales of 5.09<sup>108</sup>.

### *Wastewater Treatment*

DCWW gathers wastewater, which includes surface water from residences and businesses throughout the DCWW region. This wastewater is conveyed through a network of 36,000 km of sewers to one of

<sup>102</sup> Defra (2023) 21. *Surface water status* Available at [https://www.gov.uk/government/statistics/england-biodiversity-indicators/21-surface-water-status#:~:text=The%20Water%20Environment%20\(Water%20Framework,the%20EU%20Withdrawal%20Act%202018.](https://www.gov.uk/government/statistics/england-biodiversity-indicators/21-surface-water-status#:~:text=The%20Water%20Environment%20(Water%20Framework,the%20EU%20Withdrawal%20Act%202018.) [Accessed June 2024]

<sup>103</sup> NRW (2021) *River basin management plans 2015-2021* Available online: <https://naturalresources.wales/evidence-and-data/research-and-reports/water-reports/river-basin-management-plans/river-basin-management-plans-ublished/?lang=en#:~:text=At%20overall%20status%20across%20geographic,the%20classification%20every%203%20years.> [Accessed April 2024]

<sup>104</sup> Welsh Government (2021) *UK Marine Strategy* Available at <https://www.gov.wales/uk-marine-strategy> [Accessed June 2024]

<sup>105</sup> Welsh Government (2019) *Welsh National Marine Plan* Available at <https://www.gov.wales/welsh-national-marine-plan> [Accessed June 2024]

<sup>106</sup> NRW (2023) *Wales bathing water report 2023*. Available online: <https://naturalresources.wales/media/intoktj/wales-bathing-water-report-2023-final.pdf> [Accessed April 2024].

<sup>107</sup> NRW (2024) 2024 Bathing Water Profile for The Warren, Hay On Wye. Available online: <https://environment.data.gov.uk/wales/bathing-waters/profiles/profile.html?site=uk12400-38620> [Accessed October 2024]

<sup>108</sup> DiscoverWater.co.uk (2022) *Water quality results for all water companies*. Available online: <http://www.discoverwater.co.uk/quality> [Accessed April 2024]



the 800 wastewater treatment facilities (WwTWs) for processing, after which it is reintroduced into the surface water system, including rivers and the sea.)<sup>109, 110</sup>.

WwTW discharge consent standards are set to maintain good water quality. In 2024, DCWW received a two-star rating from NRW out of four-star Environmental Performance Assessment (EPA) rating in 2024, which means it is a company 'requiring improvements and has been issued a warning to improve performance trends regarding pollution incidents. DCWW experienced a small but significant decline in water discharge permit compliance, dropping to 98%<sup>111</sup>. NRW gives water companies a star rating for their overall performance in protecting the environment (including during return of treated water to rivers and the sea).

### *Nitrate Vulnerable Zones*

Nitrate Vulnerable Zones (NVZs) are designated areas of land that either drain into surface or groundwater with current nitrate levels exceeding 50 mg/l (as NO<sub>3</sub>) or have the potential to experience elevated nitrate levels in the future. Effective management of nitrate concentrations in coastal waters, estuaries, rivers, lakes, and groundwater is crucial, as high nitrate levels can contaminate drinking water sources and lead to a decline in overall water quality, contributing to eutrophication. After designating Nitrate Vulnerable Zones (NVZs) in Wales under the Nitrate Pollution Prevention Regulations 2013, the Welsh Government revoked these designations in 2021 with the introduction of the Water Resources (Control of Agricultural Pollution) (Wales) Regulations. These new regulations were implemented to mitigate the environmental impact of agricultural practices on water quality in Wales.

### *2.2.8.2 Future Baseline*

Under the WFD, rivers in England and Wales were required to have achieved 'good ecological status' by 2015. Where this was not possible and subject to criteria set out in the WFD, the aim is to achieve good status by 2027<sup>112</sup>. The focus of the third cycle of the River Basin Management Plan (RBMP), 2021 – 2027, is to continue to protect and improve the quality of water in Wales particularly in the Dee, Western Wales and Severn RBDs. The Programme of Measures aims to tackle various challenges across Wales, gradually reducing the number of elements failing in water bodies and enhancing their overall condition over time. By 2027, the objective is to improve the overall condition of water bodies where feasible, prevent further deterioration, and, whenever feasible, mitigate pressure on water bodies that do not achieve good status<sup>113</sup>. In Wales, the pressures that threaten the water environment include physical modifications, pollution from sewage and wastewater, pollution from towns, cities, transport, and rural areas, pollution from mines, changes to the natural flow and levels of water and INNS. In Western Wales RBD, 495 water bodies (87%) have an objective of good status by 2027. However, NRW is confident of 248 out of 566 (44%) to have good status by 2027. In the Dee RBD, 76 water bodies (92%) have an objective of good status/potential by 2027, however at present there is confidence for 37 to achieve or remain at good (43%). In the Welsh part of the Severn RBD, 235 water bodies (83%) have an objective of good status by 2027, however at present there is only confidence that 98 of these will achieve this<sup>114</sup>.

<sup>109</sup> DCWW (2024) *About us* Available at <https://corporate.dwcymru.com/en/about-us> [Accessed October 2024]

<sup>110</sup> DCWW (2024) *Drainage and Wastewater Management Plan* Available at <https://www.dwcymru.com/en/our-services/wastewater/drainage-and-wastewater-management-plan/our-current-plan-dwmp24> [Accessed October 2024]

<sup>111</sup> NRW (2024) *Further decline in Dŵr Cymru performance outlined in NRW annual review* Available at <https://naturalresources.wales/about-us/news-and-blogs/news/further-decline-in-dwr-cymru-performance-outlined-in-nrw-annual-review/?lang=en#:~:text=While%20D%C5%B5r%20Cymru%20Welsh%20Water,on%20its%20downward%20performance%20trends>. [Accessed October 2024]

<sup>112</sup> Water Information System for Europe (2024) *Water Framework Directive* Available at <https://water.europa.eu/freshwater/europe-freshwater/water-framework-directive> [Accessed June 2024]

<sup>113</sup> Welsh Government (2022) *Western Wales River Basin Management Plan 2021 – 2027 Summary* Available at <https://naturalresources.wales/evidence-and-data/research-and-reports/water-reports/river-basin-management-plans/river-basin-management-plans-2021-2027?lang=en> [Accessed June 2024]

<sup>114</sup> NRW (2022) *Welsh part of the Severn River Basin Management Plan (2021-2027) Summary*. Available

The reasons for not achieving overall good status for all water bodies is due to the unlikelihood for necessary measures to be in place by 2027, issues of acidification or chemical recovery taking longer and associated high costs or technical challenges<sup>115,116</sup>.

The State of Natural Resources Report (SoNaRR)<sup>117</sup> highlights that climate change will cause detriment to water quality during extreme events such as heavy rains and flooding which can alter the water quality through soil erosion as well as the transfer of excess nutrients and other pollutants from terrestrial to aqueous ecosystems. The SoNaRR also notes increase in pressure on water resources and the natural environment leading to more frequent droughts.

Reducing the risk of flooding as a key challenge in the future. Increased soil sealing and compaction from farming practices and urban development resulting in loss of water storage capacity and more surface water run-off will increase flood risk. The loss of natural coastal flood defences is also considered to be an important issue. Climate change is likely to exacerbate coastal erosion and flooding as a result of sea level rise and increased intensity, severity and frequency of storms over the next 100 years. The UK Climate Impacts Programme (UKCP18) forecasts that for the 2060 to 2079 period (under a high emissions scenario), there will be an increase in winter mean precipitation of up to 39% whilst sea levels are forecast to increase by up to 115 cm (by 2100, compared to the 1981 to 2000 period)<sup>118</sup>.

The UK Climate Change Risk Assessment Evidence Report (2022) forecasts large deficits by the 2050s in the provision of public water supplies under the upper bound scenario (high population growth and a high climate change impact), with projected deficits becoming more acute and widespread by the 2080s. Under a lower bound scenario (a low population and medium climate change projection), Wales is projected to be in surplus at a national scale, with deficits more locally<sup>119</sup>. According to the Water Resources Long-Term Planning Framework (2015-2065) there is a significant and growing risk of severe drought, with impacts arising from climate change, population growth and environmental drivers to reduce abstraction.<sup>120</sup>

### 2.2.8.3 Key Issues

The key issues relevant to the Drought Plan arising from the baseline assessment for water are:

- The need to protect, enhance and restore the quality of the rivers, lakes, estuarine and coastal waters taking into account WFD Regulations Water Body and Protected Area objectives;
- The need to protect, enhance and restore the quantity and quality of groundwater resources taking into account WFD objectives;
- The need to ensure sustainable and appropriate abstraction levels and water flow/levels in Wales' waters across the full range of regimes from low to high conditions and meet society's needs for a resilient water supply;
- The need to ensure that the continued risk of flooding is reduced or where this is not possible, mitigated effectively using natural flood management, nature based solutions and green engineering where possible; and

<sup>115</sup> NRW (2022) *Western Wales River Basin Management Plan 2021 – 2027 Summary*. Available online: [https://naturalresources.wales/media/695227/western-wales-rbmp-2021\\_2027-summary.pdf](https://naturalresources.wales/media/695227/western-wales-rbmp-2021_2027-summary.pdf) [Accessed April 2024].

<sup>116</sup> NRW (2022) *Dee River Basin Management Plan 2021 – 2027 Summary*. Available online: [https://naturalresources.wales/media/695219/dee-rbmp-2021\\_2027-summary.pdf](https://naturalresources.wales/media/695219/dee-rbmp-2021_2027-summary.pdf) [Accessed April 2024].

<sup>117</sup> NRW (2020) *The State of Natural Resources Report (SoNaRR)* [available at <https://naturalresources.wales/evidence-and-data/research-and-reports/state-of-natural-resources-report-sonarr-for-wales-2020/?lang=en>] [Accessed June 2024].

<sup>118</sup> UKCP. *UK Climate Projections: Headline Findings August 2022 Headline findings*. Available online: [https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18\\_headline\\_findings\\_v4\\_aug22.pdf](https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18_headline_findings_v4_aug22.pdf) [Accessed April 2024].

<sup>119</sup> HM Government (2022) *UK Climate Change Risk Assessment 2022* Available at <https://www.gov.uk/government/publications/uk-climate-change-risk-assessment-2022#:~:text=The%20risk%20assessment%20considers%20sixty,and%20species%20from%20multiple%20hazards> [Accessed May 2024]

<sup>120</sup> Water UK (2016) *Water Resources Long-Term Planning Framework (2015-2065)*. Available online: <https://www.water.org.uk/water-resources-long-term-planning-framework> [Accessed April 2024]

- The potential effects of climate change and the need to build climate change resilience and adaptation into the water environment and water management.

## 2.2.9 Soil, Geology and Land Use

### 2.2.9.1 Baseline

#### Geology

Wales has one of the most diverse geological landscapes globally, offering insights into Earth's history from the last Ice Age to the present, spanning approximately 1.4 billion years. This diverse geology not only underpins biodiversity (as it fundamental in supporting ecosystem services) and landscape but also provides important mineral resources<sup>121</sup>. The bedrock geology of Wales is extremely varied and comprises sandstone, limestone and igneous rock. Underlying the sedimentary rocks across most of Wales is a sequence of Silurian, Ordovician, and Cambrian rocks, ranging from approximately 420 to 540 million years old. These rocks, several kilometres thick, have undergone significant folding and metamorphism on a regional scale<sup>122</sup>. The Permo-Triassic sandstone forms an important groundwater resource in North Wales, whilst peat, sand and gravel deposits along river valleys support strategic local water supplies.

Metal and coal mining have been longstanding activities in Wales. The South Wales Coalfield stretches across a large part of South Wales and is still mined to some extent, although less than previously (and from opencast or drift mines rather than deep mines).

Lead and silver were once produced from mines in mid-Wales, from a series of mines inland from Aberystwyth. Lead was also mined in Central Wales and North East Wales orefields<sup>123</sup>. Copper, meanwhile, was mined in Snowdonia and at Parys Mountain on Anglesey, whilst gold was exploited around Dolgellau and Pumpsaint. A number of other metals were produced including zinc in Cardiff, arsenic, antimony and manganese.

The geodiversity of Wales has led to the forming of landscapes and environmental settings that have strong cultural service value. For example, the mountains of Snowdonia attract tourists to Wales whilst coal mining has helped to define the cultural identity of the South Wales Valleys. Following a long history, metal mining has ceased and there is only localised coal mining and slate quarrying in Wales. The aggregates industry is now the main mineral extraction industry in Wales extracting crushed rock or sand and gravel and has been reported to be placing pressures on both the marine and terrestrial environments (National Parks)<sup>124</sup>.

Within Wales, there are approximately 478 features in SSSIs designated for geology and earth science, 46% of which are assessed as being in favourable condition, 16% unfavourable and 38% unknown.

There are also 474 Geological Conservation Review (GCR) sites, over 800 Regionally Important Geodiversity Sites (RIGS), and two UNESCO Global Geoparks. Fforest Fawr Global Geopark is within the Bannau Brycheiniog National Park in South Wales and its geological heritage is of European

<sup>121</sup> NRW (2020) *The Second State of Natural Resources Report (SoNaRR2020): Assessment of the achievement of sustainable management of natural resources: Land use and soils*. Technical Report. Natural Resources Wales. Available online: <https://naturalresourceswales.gov.uk/media/693310/sonarr2020-theme-land-use-and-soils.pdf> [Accessed April 2024]

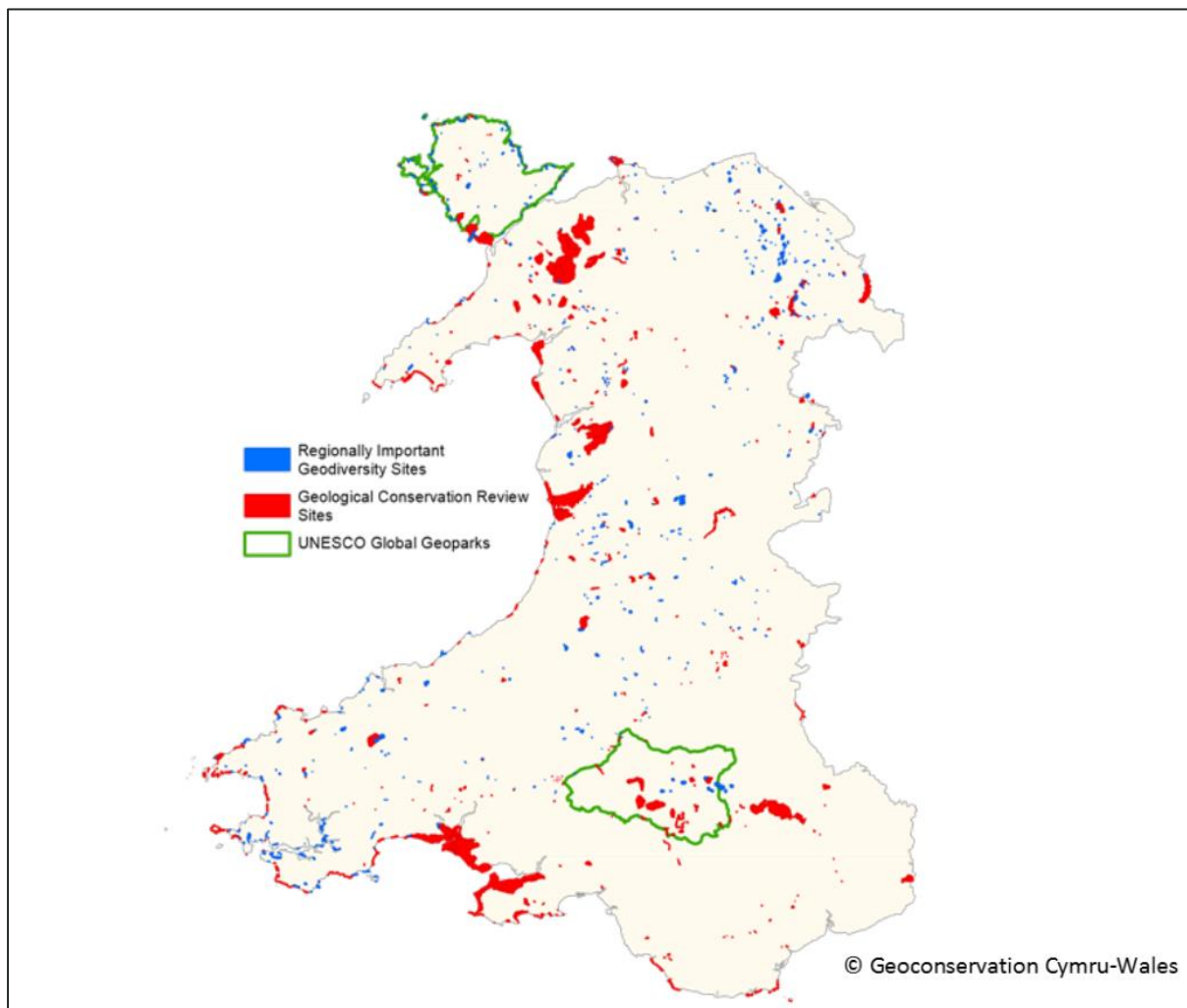
<sup>122</sup> RWM Wales (2005) *Wales Regional Geology*. Available online: [https://assets.publishing.service.gov.uk/media/5d8cc77d40f0b65e5a3f1fd0/Wales\\_Regional\\_Geology\\_V1.0a.pdf](https://assets.publishing.service.gov.uk/media/5d8cc77d40f0b65e5a3f1fd0/Wales_Regional_Geology_V1.0a.pdf) [Accessed April 2024]

<sup>123</sup> RWM Wales (2005) *Wales Regional Geology*. Available online: [https://assets.publishing.service.gov.uk/media/5d8cc77d40f0b65e5a3f1fd0/Wales\\_Regional\\_Geology\\_V1.0a.pdf](https://assets.publishing.service.gov.uk/media/5d8cc77d40f0b65e5a3f1fd0/Wales_Regional_Geology_V1.0a.pdf) [Accessed April 2024]

<sup>124</sup> NRW (2020) *State of Natural Resources Report (SoNaRR Assessment of the Achievement of SMNR Aim 4: Contributing to a Regenerative Economy, Achieving Sustainable Levels of Production and Consumption)*. Technical Report. Natural Resources Wales. Available online <https://naturalresourceswales.gov.uk/a-to-z?lang=en&letter=s> [Accessed April 2024]

significance. The GeoMôn Global Geopark is located on Anglesey, northwest Wales<sup>125</sup>. The location of the geodiversity sites is shown on **Figure 2-11**.

Figure 2-11 Welsh Geodiversity Sites

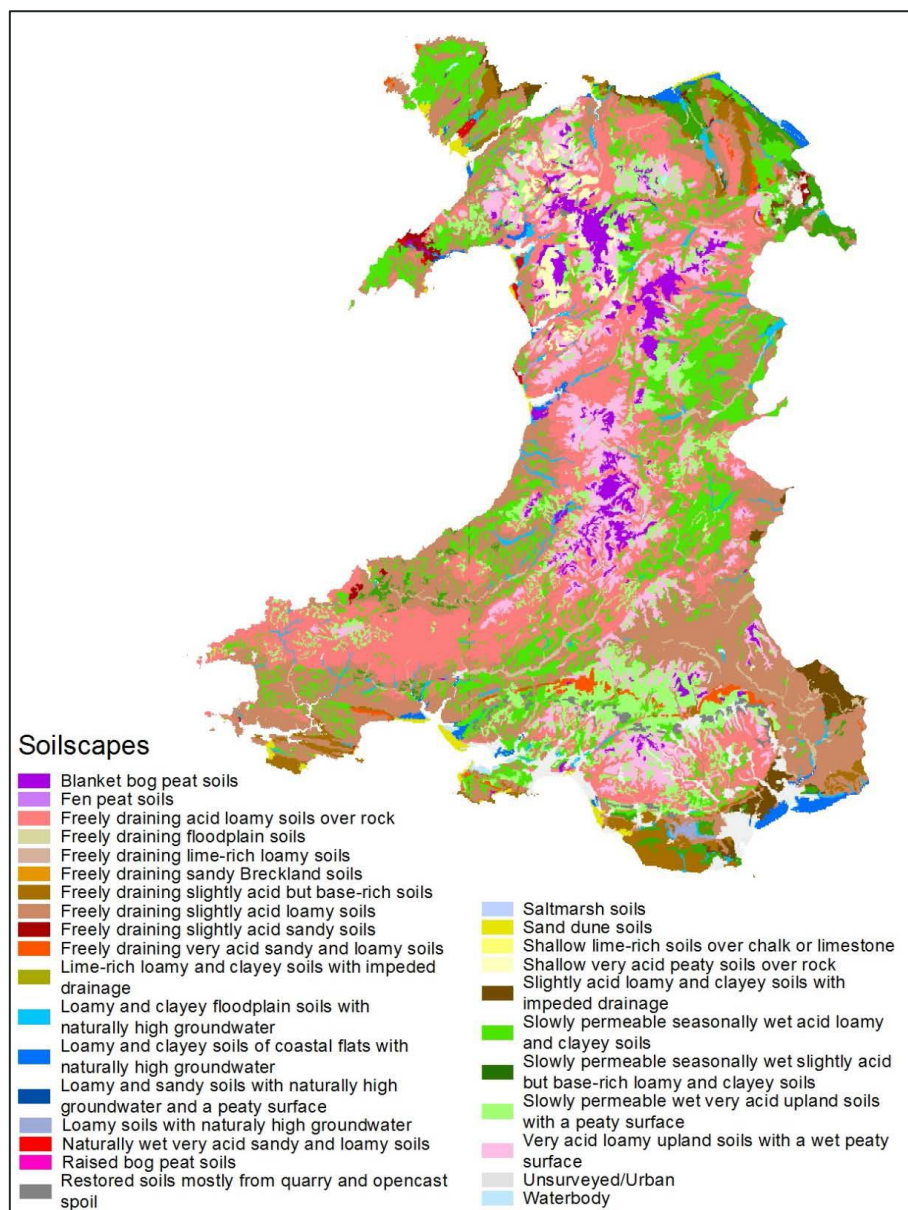


### Land Use and Soil

Soil quality is generally determined through interaction with the external climatic factors. This controls how land can be used across Wales. Society puts additional pressures on soil and its supporting services (soil formation, nutrient cycling) through land use and by changing the environment. There are over 400 different soil types in Wales grouped into 29 soilscares (**Figure 2-12**) which are contributing to, reflecting, and supporting the geodiversity and biodiversity, landscapes and land uses in Wales. Overall, Wales experiences a moist climate. Soil quality has deteriorated across all habitats apart from woodlands where there has been some improvement.

<sup>125</sup> NRW (2020) *The Second State of Natural Resources Report (SoNaRR2020): Assessment of the achievement of sustainable management of natural resources: Land use and soils*. Technical Report. Natural Resources Wales. Available online: <https://naturalresourceswales.gov.uk/a-to-z/?lang=en&letter=s> [Accessed April 2024]



Figure 2-12 National Soil Map of Wales<sup>126</sup>

Land use in Wales is predominantly agricultural, covering around 90% of the country's total land area. Most of this agricultural land is used for permanent and new grasslands as well as rough grazing. The management of agricultural land is crucial for the sustainable management of Wales' natural resources. Shifting land from less intensive uses, like semi-natural grasslands, to more intensive uses, such as arable farming, leads to the loss of soil carbon and a reduction in biodiversity. This is especially true for vulnerable soil types like peat and organo-mineral soils, which store significant amounts of carbon. In Wales, there is increasing demand for land for urbanization, mineral extraction, and renewable energy projects (solar and wind). These developments, particularly on high-quality agricultural land, pose risks

<sup>126</sup> NRW (2016) *The State of Natural Resources Report (SoNaRR): Assessment of the Sustainable Management of Natural resources. Technical Report. Chapter 3. Summary of extent, condition and trends of natural resources and ecosystems in Wales.* Available online: <https://naturalresources.wales/evidence-and-data/research-and-reports/the-state-of-natural-resources-report-assessment-of-the-sustainable-management-of-natural-resources/?lang=en> [Accessed April 2024]

to soil health and ecosystems, with potential long-term impacts that require better understanding and management. Though future loss of BMV land to housing and development is expected to be minimal compared to past trends, competition for land from sectors like forestry, renewable energy, and urban development is expected to intensify. The conversion of permanent grasslands—comprising two-thirds of Wales' land—into arable land, renewable energy sites, or development projects is a key concern. Existing policies, such as Planning Policy Wales, aim to protect high-quality agricultural land from development. Additionally, the UK Forestry Standard guidelines discourage afforestation on sensitive soil types, such as deep peat, to avoid compromising ecosystems<sup>127</sup>.

In Wales, enclosed farmland covers 54% of the land and consists of improved and semi-improved agricultural areas, defined by field boundaries. While this is an intensively managed ecosystem, it also supports important biodiversity features, including hedgerows, traditional orchards, wood pasture, parkland, and low-intensity arable land. However, enclosed farmland faces several challenges, such as its negative environmental impact, loss of farmland biodiversity, pollution, and its contribution to climate change. Both the IPBES and the UK Committee on Climate Change (UKCCC) advocate for transforming agricultural systems to halt biodiversity loss and mitigate climate change<sup>128</sup>.

The Agricultural Land Classification (ALC) System, developed by the Ministry of Agriculture, Fisheries and Food (MAFF) in the 1960s, provides a method for assessing the quality of farmland. There are five grades of agricultural land quality plus non-agricultural and urban categories. **Table 2-10** shows agricultural land quality in Wales and England by ALC grade. The 'best and most versatile land' (BMV) is generally defined as the agricultural land which falls into Grades 1, 2 and 3a. A predictive ALC map of Wales is shown in . The majority of BMV land is covered by grassland, with just 32% of the total (296,897 hectares) used for crop production (including arable crops, uncropped land, and high-value horticultural products; 95,500 ha). Less Favoured Area (LFA) status has been granted to about 80% of Wales' agricultural land (European Union). This indicates land is limited by poor soils and low agricultural revenue and represents the mountainous and high rainfall areas in Wales, which are limiting constraints for agricultural activity<sup>129</sup>.

The quality of the agricultural land in Wales is characterised by significant areas of grades 4 and 5 agricultural land (poor to very poor quality) as illustrated in the predictive ALC map in **Figure 2-13** and at a much higher proportion than in England. This reflects the large proportion of upland area which generally has low agricultural quality due to exposure and poor soil cover. The English areas of the DCWW supply area are generally of a higher agricultural quality. Low soil quality combined with a hilly/mountainous landscape and wet climate means that the majority of agricultural land in Wales is restricted to the grazing of sheep and cattle<sup>130</sup>.

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<sup>127</sup> Welsh Government (2022) *Welsh Soil Evidence Review* Available online [https://www.gov.wales/sites/default/files/publications/2022-08/review-welsh-soil-evidence\\_0.pdf](https://www.gov.wales/sites/default/files/publications/2022-08/review-welsh-soil-evidence_0.pdf) [Accessed October 2024]

<sup>128</sup> NRW (2020) *The Second State of Natural Resources Report* (SoNaRR2020). SoNaRR2020: Enclosed farmland. Available online: <https://naturalresources.wales/evidence-and-data/research-and-reports/state-of-natural-resources-report-sonarr-for-wales-2020/sonarr2020-our-assessment/ecosystems/enclosed-farmland/?lang=en> [Accessed October 2024]

<sup>129</sup> Welsh Government (2022) *Welsh Soil Evidence Review* Available online [https://www.gov.wales/sites/default/files/publications/2022-08/review-welsh-soil-evidence\\_0.pdf](https://www.gov.wales/sites/default/files/publications/2022-08/review-welsh-soil-evidence_0.pdf) [Accessed October 2024]

<sup>130</sup> NRW (2020) *The Second State of Natural Resources Report* (SoNaRR2020). Technical Report. Natural Resources Wales. Available online: <https://naturalresources.wales/evidence-and-data/research-and-reports/state-of-natural-resources-report-sonarr-for-wales2020/?lang=en> [Accessed May 2024]



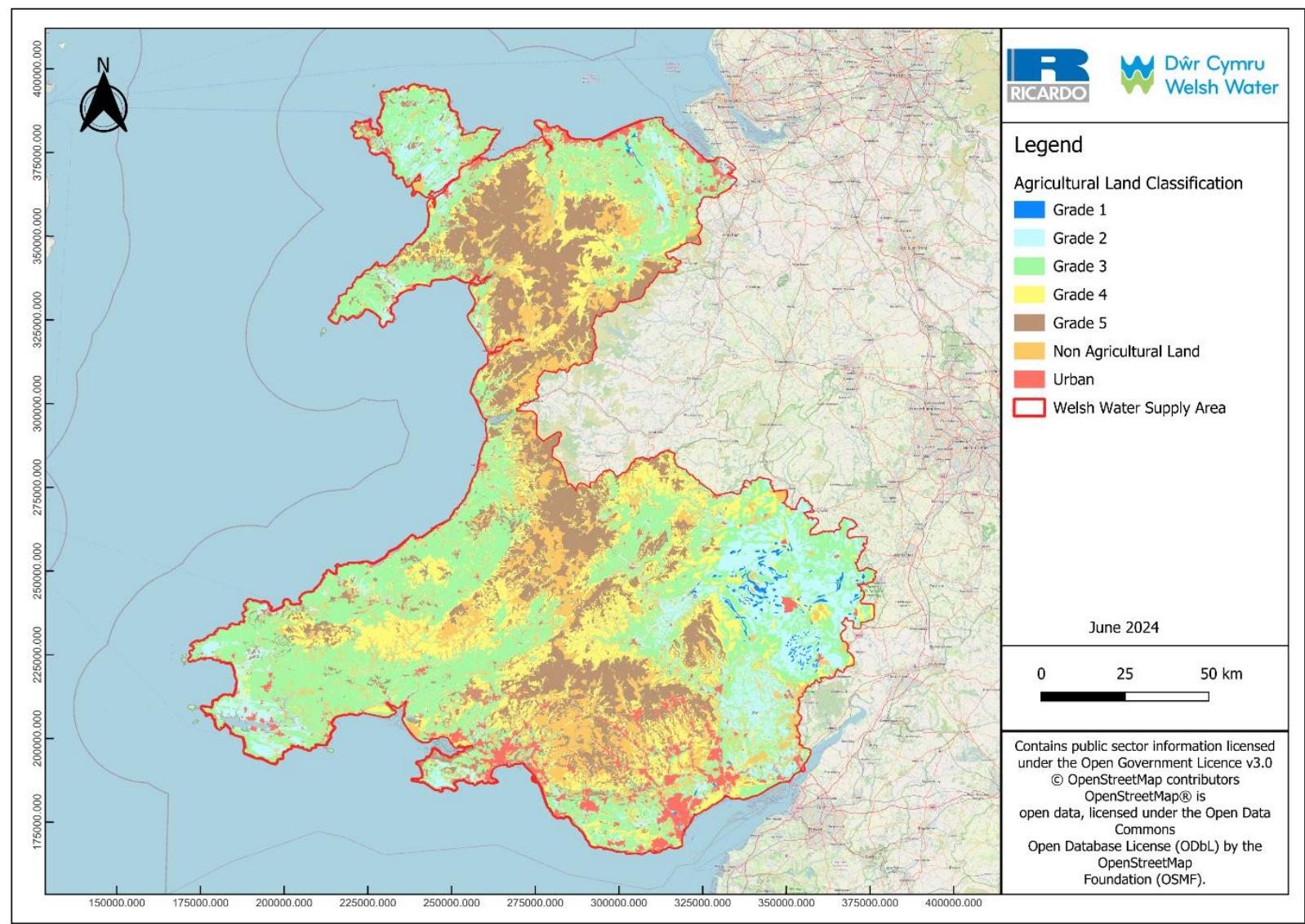
Table 2-10 Agricultural Land Quality (as a % of land area within DCWW area)

| Agricultural Land Grade | Wales (% of land area) <sup>131</sup> | Agricultural Land Grade    | England (% of land area) <sup>132</sup> |
|-------------------------|---------------------------------------|----------------------------|-----------------------------------------|
| Grade 1 – Excellent     | 0.10                                  | Grade 1 – Excellent        | 1.80                                    |
| Grade 2 – Very Good     | 6.29                                  | Grade 2 – Very Good        | 25.86                                   |
| Grade 3a– Good          | 9.16                                  | Grade 3a–<br>Good/Moderate | 54.26                                   |
| Grade 3b - Moderate     | 23.43                                 |                            |                                         |
| Grade 4 – Poor          | 19.44                                 | Grade 4 – Poor             | 11.98                                   |
| Grade 5 – Very Poor     | 22.47                                 | Grade 5 – Very Poor        | 1.42                                    |
| Non-agricultural        | 14.74                                 | Non-agricultural           | 4.04                                    |
| Urban                   | 4.37                                  | Urban                      | 0.63                                    |

<sup>131</sup> Welsh Government (2019) *Predictive Agricultural Land Classification (ALC) Map 2*. Available online: [https://datamap.gov.wales/layers/inspire-wg:wg\\_predictive\\_alc2](https://datamap.gov.wales/layers/inspire-wg:wg_predictive_alc2) [Accessed May 2024]

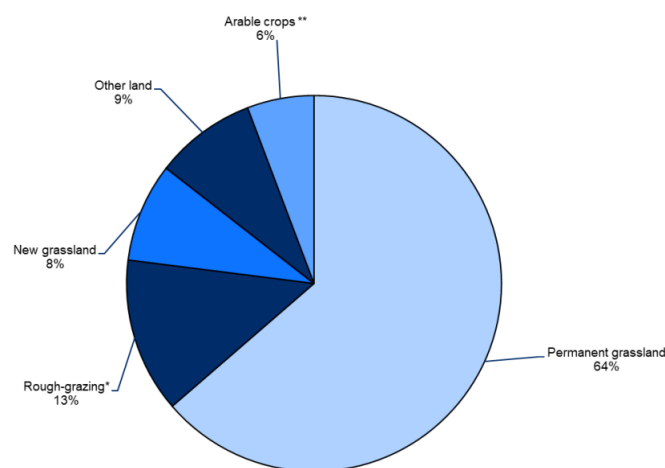
<sup>132</sup> Natural England (2024) *Provisional Agricultural Land Classification (ALC)*. Available online: <https://www.data.gov.uk/dataset/952421ec-da63-4569-817d-4d6399df40a1/provisional-agricultural-land-classification-alc> [Accessed May 2024]

Figure 2-13 Agricultural Land Classification Wales



The Welsh Agricultural Survey collects information about land that is used on farms (excluding the use of common land). The latest data<sup>133</sup>, published in 2022, show that agriculture is the dominant land use area in Wales (around 80-90% of total land area), followed by forestry and woodlands and then built environment. The amount of arable crops increased in 2022 compared to the previous year, largely due to increase in area of cereals grown. The split of land on agricultural holdings is shown in **Figure 2-14**, reflecting the climate, relief and soil type across Wales.

Figure 2-14 Split of land on agricultural holdings by use, 2022<sup>134</sup>



Land used for renewable energy development has continued to increase to meet the target of 70% of Wales's electricity consumption from renewable energy sources by 2030 (59% in 2022). This includes wind, solar, hydropower, energy from waste and bioenergy projects plus the required electricity supply infrastructure<sup>135</sup>.

According to Forest Research, in 2017, the estimated tree cover (including both urban and rural areas) outside National Forest Inventory (NFI) defined woodlands was approximately 92,700 hectares. This consisted of small woods less than 0.5 hectares in size (49,200 hectares), groups of trees (33,400 hectares), and lone trees (10,100 hectares). Woodland, as a percentage of land cover, accounts for 15% of the total, while when including trees outside woodlands, the overall land cover of woodlands and trees in Wales amounts to 19.4%<sup>136</sup>.

Alongside their agricultural use, soils and particularly peats store a significant amount of carbon. Soils also provide storage for water, foundations for urbanisation and woodlands, provision of minerals and metals and for biodiversity acting as both a habitat and a foundation for a range of habitats. However, soil erosion and acidification are prominent pressures. Fertile topsoil develops at a rate of less than 1 cm/century. An estimated 2.9 million tonnes of topsoil are eroded on an annual basis in the UK<sup>137</sup>. Some agricultural practices (e.g., harvesting in wet conditions, leaving fields bare after harvest) result in large volumes of productive topsoil being compacted and degraded as well as eroded and deposited in adjacent water courses. There are also many impacts on the water environment due to sediment transport as a result of eroded soils entering waterways. The primary causes of soil erosion in Wales

<sup>133</sup> Welsh Government (2022) *June 2022 Survey of Agriculture and Horticulture: Results for Wales*. Available online: <https://www.gov.wales/sites/default/files/statistics-and-research/2022-11/survey-agriculture-and-horticulture-june-2022-005.pdf> [Accessed May 2024]

<sup>134</sup> Welsh Government (2022) *June 2022 Survey of Agriculture and Horticulture: Results for Wales*. Available online: <https://www.gov.wales/sites/default/files/statistics-and-research/2022-11/survey-agriculture-and-horticulture-june-2022-005.pdf> [Accessed May 2024]

<sup>135</sup> Welsh Government (2022) *Energy Generation in Wales 2022* Available at <https://www.gov.wales/sites/default/files/publications/2023-11/energy-generation-in-wales-2022.pdf> [Accessed June 2024]

<sup>136</sup> Forestry Commission (2017) *Tree cover outside woodland in Great Britain*. Available online: [https://cdn.forestryresearch.gov.uk/2022/02/fr\\_tree\\_cover\\_outside\\_woodland\\_in\\_gb\\_statistical\\_report\\_2017.pdf](https://cdn.forestryresearch.gov.uk/2022/02/fr_tree_cover_outside_woodland_in_gb_statistical_report_2017.pdf) [April 2024].

<sup>137</sup> Protect Earth (2023) *Soil erosion is a problem in the UK. There are 'simple' ways to combat it*. Available online: <https://www.protect.earth/blog/soil-erosion-is-a-problem-in-the-uk-there-are-simple-ways-to-combat-it> [Accessed April 2024]

are upland erosion processes, landslips, stream bank erosion, and water erosion along the English border. The most common type of erosion in the uplands is the erosion of peaty soils. Because grassland and rough grazing predominate, large portions of Wales are thought to have low rates of erosion, albeit this has not been measured or seen. According to a survey, land that was planted with winter grains was linked to 80% of erosion events<sup>138</sup>.

In the upland regions of Wales, where the ALC grades are lower, there are notable amounts of carbon trapped in peat and organo-mineral soils. Approximately 17% of Wales' soils are composed of organo-mineral soils, which are a significant national carbon sink that store approximately 18% of the carbon contained in Welsh soils (74.5 Mt C at a depth >1 m). It is believed that more than half of the carbon stored in Welsh organo-mineral soils is kept at a depth of 0 to 15 cm, making it more susceptible to changes in the environment and management techniques<sup>139</sup>.

Wales' peat habitats have been negatively affected by climate change, land management and atmospheric pollution. The peatlands have been reported to be drying and oxidising which will cause them to emit carbon as opposed to sequestering carbon when in good condition<sup>140</sup>. The majority of the peatland resource is currently in a state of poor condition, which diminishes its capacity to effectively mitigate climate change and to capitalise on the various regulating services that peatlands can offer when in good condition<sup>141</sup>.

According to the 2021 Soil Formation Rates Scoping Study, erosion rates in England and Wales (Table 14) can often exceed soil formation rates. In particular, erosion on land with sandy or silty textures and subject to intensive land use (e.g., bare soils on slopes, tillage) may result in erosion rates being an order of magnitude greater than soil formation. Arable agriculture, which is more prone to erosion, makes up only about 6% of the land area in Wales, mainly in Eastern Wales on slopes where erosion may exceed soil production. However, this combination of factors is considered rare across most of Wales. Since grassland covers 65% of Wales, and much of it is on heavier clay or clay loam soils, erosion rates in these areas are relatively low and may fall within the range of soil formation rates (e.g., 0.02-0.03 mm/yr for grassland). Therefore, for much of the Welsh landscape, erosion is not necessarily greater than soil formation. Despite the broader trend, localised erosion on certain slopes or areas within fields (e.g., mid-slopes) could result in erosion significantly outpacing formation in specific cases. While soil erosion can exceed soil formation in certain areas of Wales (especially in erodible soils, arable lands, or upland peatlands), it is not uniformly greater across the country. In much of Wales, particularly in grassland areas, erosion rates tend to be within the range of soil formation, but the risk of significant erosion events remains a possibility<sup>142</sup>.

The Welsh Government prioritises sustainable land use and management as a critical aspect of its agenda. The extraction of raw materials for development, waste management, and the rapid expansion of renewable energy infrastructure (see **Section 2.2.7**) necessitates significant changes in land use. These activities place increasing demands on land to provide a diverse array of public goods and services<sup>143</sup>. Addressing these pressures is essential to achieving sustainable development land management and ensuring the responsible stewardship of natural resources. The Sustainable Farming Scheme (SFS), set to be introduced in Wales in 2026, represents a significant shift in agricultural policy

<sup>138</sup> NRW (2020) *The Second State of Natural Resources Report (SoNaRR2020): Assessment of the achievement of sustainable management of natural resources: Land use and soils*. Technical Report. Natural Resources Wales. Available online: <https://naturalresourceswales.gov.uk/a-to-z?lang=en&letter=s> [Accessed April 2024]

<sup>139</sup> Welsh Government (2022) *Welsh Soil Evidence Review*. Available online: [https://www.gov.wales/sites/default/files/publications/2022-08/review-welsh-soil-evidence\\_0.pdf](https://www.gov.wales/sites/default/files/publications/2022-08/review-welsh-soil-evidence_0.pdf) [Accessed October 2024]

<sup>140</sup> NRW (2023) *Assessing and restoring deep peat*. Available online: <https://naturalresources.wales/guidance-and-advice/environmental-topics/woodlands-and-forests/assessing-and-restoring-deep-peat/?lang=en> [Accessed April 2024]

<sup>141</sup> NRW (2020) *The Second State of Natural Resources Report (SoNaRR2020): Assessment of the achievement of sustainable management of natural resources: Land use and soils*. Technical Report. Natural Resources Wales. Available online: <https://naturalresourceswales.gov.uk/a-to-z?lang=en&letter=s> [Accessed April 2024]

<sup>142</sup> Welsh Government (2021) *Soil Formation Rates Scoping Study*. Available online: <https://www.gov.wales/sites/default/files/publications/2022-01/soil-formation-rates-scoping-study.pdf> [Accessed October 2024]

<sup>143</sup> NRW (2020) *The Second State of Natural Resources Report (SoNaRR2020): Assessment of the achievement of sustainable management of natural resources: Land use and soils*. Technical Report. Natural Resources Wales. Available online: <https://naturalresourceswales.gov.uk/a-to-z?lang=en&letter=s> [Accessed April 2024]



aimed at promoting environmental sustainability alongside farm productivity. This scheme is part of Wales' broader agricultural reform, driven by the need to balance food production with environmental stewardship, mitigate climate change, and enhance biodiversity. The SFS in Wales presents an opportunity to transition towards more sustainable agricultural practices that benefit both the environment and farming communities. However, the trade-offs highlighted in the SoNaRR emphasise the complexity of these changes, particularly regarding water supply issues<sup>144</sup>.

### 2.2.9.2 Future Baseline

Geological hazards may change as a response to climate change. For example, coastal erosion, landslides and pollution from former mine sites. Land that was previously industrial or used as landfill may be contaminated by metals, organic compound contaminants, hydrocarbons or pesticides. Land affected by contamination can pose a risk to both human health and the wider environment<sup>143</sup>.

Soils are dynamic systems shaped by numerous factors, but human activities have significantly affected their quality. Increased crop and livestock production, urban expansion, Wales' industrial legacy of land contamination from metal mines, atmospheric deposition, and poor management practices in some areas have all contributed to soil degradation. As a result, soil erosion has intensified, and soil formation processes have been disrupted. Since soil takes a long time to regenerate, it is considered a finite resource, which may influence its assessment and management strategies.

Future land use changes in Wales will be influenced by factors like climate change, post-Brexit trade policies, agricultural commodity prices, and national goals for food security, net-zero emissions, and sustainable resource management<sup>145</sup>.

Climate change is the biggest threat to soils. In the 2020s and 2050s, high-quality agricultural land (Grades 1 and 2) is expected to improve, but by the 2080s, it declines significantly, with Grade 1 land dropping by up to 82%. Best and Most Versatile (BMV) land increases initially due to growth in Grade 3a but decreases by over 50% under high emissions by 2080. Poor-grade land (Grade 4) declines in earlier decades but rises sharply by 2080, making up nearly 40% of Wales' land under high emissions<sup>146</sup>.

Soil contamination is an additional threat posed by industry, urbanisation and mineral extraction which can affect biological processes of soil formation. Degradation in soil structure can also potentially be a factor in flooding whilst dissolved organic carbon (DOC) concentrations have increased in upland waters which suggests soil carbon stocks may be destabilising due to climate change<sup>147</sup>.

Woodlands are a fundamental part of the environment in Wales and there are a number of pressures on them. In 2022/23, Wales had 0.31 million hectares of woodland, accounting for 10% of total UK woodland. 1.19 thousand hectares of new woods were established in Wales<sup>148</sup>. In Wales, a warmer climate is expected to boost tree growth nationally, with conifers potentially increasing productivity by 2 to 4 cubic metres per hectare annually in areas where water and nutrients are sufficient. Central and eastern Wales will likely remain favourable for broadleaved species, such as oak and ash, which are well-suited for high-quality timber. However, climate shifts will alter species compositions, with more frequent summer droughts, winter flooding, and extreme winds posing challenges. Pests and diseases,

<sup>144</sup> NRW (2020) *The Second State of Natural Resources Report (SoNaRR2020)*. Available online: <https://naturalresources.wales/evidence-and-data/research-and-reports/state-of-natural-resources-report-sonarr-for-wales-2020/?lang=en> [Accessed October 2024]

<sup>145</sup> Welsh Government (2022) *Welsh Soil Evidence Review*. Available online [https://www.gov.wales/sites/default/files/publications/2022-08/review-welsh-soil-evidence\\_0.pdf](https://www.gov.wales/sites/default/files/publications/2022-08/review-welsh-soil-evidence_0.pdf) [Accessed October 2024]

<sup>146</sup> Welsh Government (2020) *Capability, Suitability & Climate Programme The effect of Climate Change on Agricultural Land Classification (ALC) in Wales*. Available online <https://www.gov.wales/sites/default/files/publications/2021-04/agricultural-land-classification-projected-effect-climate-change.pdf> [Accessed October 2024]

<sup>147</sup> NRW (2020) *The Second State of Natural Resources Report (SoNaRR2020). Technical Report. Natural Resources Wales*. Available online: <https://naturalresources.wales/evidence-and-data/research-and-reports/state-of-natural-resources-report-sonarr-for-wales2020/?lang=en> [Accessed May 2024]

<sup>148</sup> Forest Research (2023) *Forestry Statistics 2023 Chapter 1: Woodland Area & Planting*. Available at <https://www.forestryresearch.gov.uk/tools-and-resources/statistics/forestry-statistics/forestry-statistics-2023/2023-1-woodland-area-and-planting/> [Accessed June 2024]

like the green spruce aphid, may also become more prevalent, impacting species such as Sitka spruce in parts of Wales<sup>149</sup>. Climate change poses several risks to forests, including increased vulnerability to wind and storm damage, landslides, flooding, soil erosion, and wildfires. More frequent spring and summer droughts, particularly in south Wales, could stress trees, while changing seasonal patterns, such as later dormancy and earlier bud burst, may affect timber quality and increase frost damage risk. Longer, warmer growing seasons could boost tree growth if water and nutrients are sufficient. However, forests will also face heightened threats from expanding populations of pests and pathogens, leading to greater risk of damage and tree mortality<sup>150</sup>.

The SoNaRR2020 report identifies a number of aims of relevance to land use and soil, including:<sup>151</sup>

- Sustainable use and management of soils
- Adaptation to climate change
- Adaptation of land management systems and practices
- Sustainable land use change
- Sustainable standards for agriculture, forestry and development
- Meaningful implementation of Wales's national peatland restoration and woodland creation programmes.

### 2.2.9.3 Key Issues

The key sustainability issues relevant to the Drought Plan arising from the baseline assessment for geology and soils are listed below but noting that The Drought Plan is unlikely to affect land use as permanent development is unlikely to be required to meet the objectives of the plan:

- The need to protect, maintain and enhance geomorphological functions and services;
- The need to influence how land is managed, promoting sustainable patterns of land use;
- The need to conserve and enhance soil quality and function (including carbon sequestration);
- The need to protect and avoid damage to Wales' geodiversity and conserve and enhance sites designated for geological interest; and
- The need to manage impacts on soil resources, including control of pollution and remediation of contaminated land

## 2.2.10 Air and Climate

### 2.2.10.1 Baseline

#### *Air Quality*

Clean air is an essential natural resource for preserving human health, protecting the environment, and sustaining economic prosperity. The release of pollutants into the air can endanger human health, leading to respiratory ailments and lung disorders. Additionally, it can harm the environment by causing alterations to ecosystems and harming vegetation when concentrations exceed certain thresholds. Air quality, in this context, pertains to the extent of pollutants discharged into the air and their implications for the risk of detrimental effects on both the environment and human health. Damaging air pollutants include; fine particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>), ammonia (NH<sub>3</sub>), nitrogen oxides (NO<sub>x</sub>), sulphur dioxide (SO<sub>2</sub>) and non-methane volatile organic compounds (NMVOCs).

<sup>149</sup> Forest Research (2024) *Adapting forests and woodlands in Wales to climate change – findings and recommendations* Available at <https://www.forestresearch.gov.uk/research/climate-change-adaptation/adapting-forests-and-woodlands-in-wales-to-climate-change-findings-and-recommendations/> [Accessed October 2024]

<sup>150</sup> Forest Research (2024) *Wales* Available at <https://www.forestresearch.gov.uk/climate-change/advice/official-country-guidance/wales/> [Accessed October 2024]

<sup>151</sup> NRW (2020) *The Second State of Natural Resources Report (SoNaRR2020): Assessment of the achievement of sustainable management of natural resources: Land use and soils*. Available online: <https://naturalresourceswales.gov.uk/media/693312/sonarr2020-ecosystem-freshwater.pdf> [Accessed April 2024]



Emissions into the atmosphere from various sectors such as transportation, agriculture and industry travel considerable distances, propelled by prevailing weather conditions. Through natural processes such as precipitation, the emissions find their way into water sources, resulting in long term effects of water pollution such as eutrophication which can take several years to reverse. To align with the objectives of the National Emissions Ceilings Directive<sup>152</sup> and the Water Framework Directive, all sectors are required to cut air emissions.

Drought management measures may involve the operation of abstraction and treatment facilities at a greater level of intensity and/or in locations where such operations do not normally take place, with the potential for negative effects, although generally only in the short term.

The UK Government and Devolved Administrations are mandated to develop a national ambient air quality strategy, delineating objectives and standards aimed at enhancing air quality. Concurrently, Local Authorities are tasked with routinely evaluating air quality within their jurisdiction in relation to the national objectives<sup>153</sup>. Air Quality Management Areas (AQMAs) are declared by Local Authorities in specific locations where atmospheric concentrations of one or more pollutants (including pollutants such as NO<sub>2</sub>, SO<sub>2</sub>, NMVOCs, and PM<sub>10</sub>) are either close to or exceeding statutory objectives set out within the National Air Quality Strategy.

As of 2024, there are 44 AQMAs in Wales, all of which are located in South Wales with the majority attributed to road transport (**Table 2-11**).

**Table 2-11: Number of AQMAs in Wales by Source (2024)**<sup>154</sup>

| Source                           | Nº of Current AQMAs by Source |
|----------------------------------|-------------------------------|
| County or Unitary Authority Road | 21                            |
| Highways Agency Road             | 2                             |
| Industrial Source                | 1                             |
| Mixture of road types            | 5                             |
| Road transport unspecified       | 15                            |

*Note: There are no AQMAs with 'Domestic Heating', 'Not Defined', 'Railways', 'Transport and Industrial' or 'Transport, Industrial and Domestic' listed as a source.*

Most of the AQMAs in Wales were declared as a result of nitrogen dioxide except for Neath Port Talbot which was declared for particulates. As shown in **Table 2-12**, Rhondda-Cynon-Taff Council has the most AQMAs in place (16), all for nitrogen dioxide and half have been in place for more than seven years<sup>154</sup>.

**Table 2-12: Number of AQMAs in Wales per Local Authority (2024)**<sup>155</sup>

| Local Authority | AQMAs (current) | AQMAs (revoked) | Pollutant AQMA in place for      |
|-----------------|-----------------|-----------------|----------------------------------|
| Bridgend        | 1               | 0               | Nitrogen dioxide NO <sub>2</sub> |

<sup>152</sup> National Atmospheric Emissions Inventory (2024) *National Emissions Ceilings Regulations (NECR)* Available at <https://naei.beis.gov.uk/about/why-we-estimate?view=necr> [Accessed June 2024]

<sup>153</sup> UK Parliament (2020). *Local Government air quality responsibilities*. Available online: <https://commonslibrary.parliament.uk/research-briefings/cbp-8804/#:~:text=The%20local%20air%20quality%20management,locations%2C%20by%20an%20applicable%20date.> [Accessed April 2024]

<sup>154</sup> Defra (2024). *Summary AQMA data*. Available online: <https://uk-air.defra.gov.uk/aqma/summary> [Accessed April 2024]

<sup>155</sup> Welsh Government (2024) *Air Quality Management Areas*. Available online: <https://www.airquality.gov.wales/laqm/air-quality-management-areas> [Accessed April 2024]

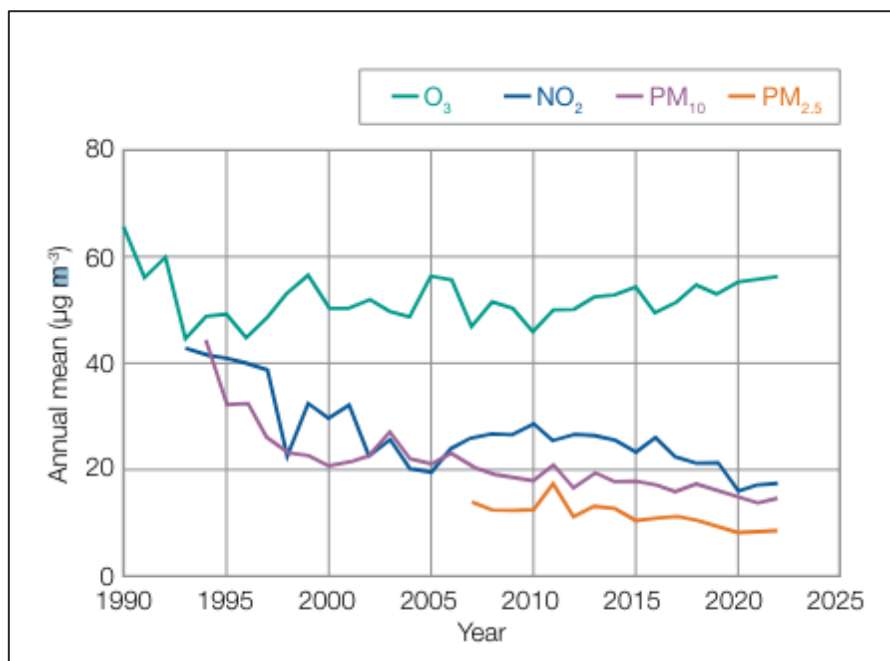
| Local Authority       | AQMA (current) | AQMA (revoked) | Pollutant AQMA in place for         |
|-----------------------|----------------|----------------|-------------------------------------|
| Caerphilly            | 2              | 0              | Nitrogen dioxide NO <sub>2</sub>    |
| Cardiff               | 4              | 3              | Nitrogen dioxide NO <sub>2</sub>    |
| Carmarthenshire       | 3              | 0              | Nitrogen dioxide NO <sub>2</sub>    |
| Merthyr Tydfil        | 1              | 0              | Nitrogen dioxide NO <sub>2</sub>    |
| Monmouthshire         | 2              | 0              | Nitrogen dioxide NO <sub>2</sub>    |
| Neath Port Talbot     | 1              | 0              | Particulate Matter PM <sub>10</sub> |
| Newport               | 11             | 2              | Nitrogen dioxide NO <sub>2</sub>    |
| Pembrokeshire         | 2              | 0              | Nitrogen dioxide NO <sub>2</sub>    |
| Powys                 | 0              | 1              | Nitrogen dioxide NO <sub>2</sub>    |
| Rhondda Cynon Taf     | 16             | 2              | Nitrogen dioxide NO <sub>2</sub>    |
| Swansea               | 1              | 0              | Nitrogen dioxide NO <sub>2</sub>    |
| the Vale of Glamorgan | 0              | 1              | Nitrogen dioxide NO <sub>2</sub>    |

In 2022, monitoring sites across Wales generally adhered to Air Quality Strategy (AQS) Objectives and corresponding EU limit values for various pollutants, including PM<sub>10</sub>, PM<sub>2.5</sub>, CO, and SO<sub>2</sub>. However, one site exceeded the NO<sub>2</sub> annual mean objective, and several sites surpassed the O<sub>3</sub> objective during high-ozone periods in July and August<sup>156</sup>.

The longer-term trend in air quality in Wales shows signs of improvement for NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> (**Figure 2-15**). This confirms that the local measures being put in place to NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> concentrations are having the desired result, all be it on a national scale. O<sub>3</sub> (Ozone) pollutant concentrations have not decreased over the period. O<sub>3</sub> is considered a pollutant with transboundary characteristics, meaning its regulation extends beyond the direct control of the Welsh Government and local authorities<sup>156</sup>.

<sup>156</sup> Welsh Government (2023) *Air Quality in Wales 2022/2023*. Available online: [https://www.airquality.gov.wales/sites/default/files/documents/2023-11/AQ-Wales-2022-English\\_Final.pdf](https://www.airquality.gov.wales/sites/default/files/documents/2023-11/AQ-Wales-2022-English_Final.pdf) [Accessed April 2024].

Figure 2-15: Ambient Pollutant Trends in Wales 1990 – 2025



Air pollution is recognised as one of the foremost environmental hazards to public health in the UK, with an annual mortality rate attributed to human-made air pollution ranging between 28,000 and 36,000 deaths. It is estimated that the cumulative cost of air pollutants to the NHS and the social care system from 2017 to 2025 will amount to £1.6 billion<sup>157</sup>.

Air pollution, particularly from ozone exposure and acid deposition, poses widespread and significant threats to ecosystems. Acidification, a direct consequence of acid gas deposition, leads to episodes of low pH in water bodies with naturally minimal dissolved mineral content. Many areas of Wales are susceptible to acid sensitivity. Acidification adversely affects rivers, streams, lakes, and ponds in upland regions across Wales<sup>158</sup>.

### Climate

Through the Climate Change Act 2008, the UK has set itself a target of reducing greenhouse gas emissions by at least 80% compared to 1990 levels by 2050. The Environment (Wales) Act 2016 (as amended) and the Climate Change (Wales) Regulations 2021 place a duty on the Welsh Ministers to reduce greenhouse gas (GHG) emissions in Wales by at least 100% in 2050 against the baseline ('net zero')<sup>159,160</sup>. Wales has established a series of statutory 5-year carbon budgets that define the pathway

<sup>157</sup> UK Government (2022) *Air pollution: applying All Our Health*. Available online: <https://www.gov.uk/government/publications/air-pollution-applying-all-our-health/air-pollution-applying-all-our-health#:~:text=In%20the%20UK%2C%20air%20pollution,and%2036%2C000%20deaths%20every%20year> [Accessed April 2024].

<sup>158</sup> NRW (2020) *The Second State of Natural Resources Report (SoNaRR2020): Assessment of the achievement of sustainable management of natural resources: Freshwater*. Technical Report. Natural Resources Wales. Available online: <https://naturalresourceswales.gov.uk/media/693312/sonarr2020-ecosystem-freshwater.pdf> [Accessed April 2024]

<sup>159</sup> The Environment (Wales) Act 2016 (Amendment of 2050 Emissions Target) Regulations 2021 changed the statutory target within the Environment Act from 80% to 100% and came into force on 12 March 2021.

<sup>160</sup> Welsh Government (2021) *The Climate Change (Wales) Regulations 2021: integrated impact assessment* <https://www.gov.wales/climate-change-wales-regulations-2021-integrated-impact-assessment.html> [Accessed October 2024].

to meet the target. Net Zero Wales, published in 2021, sets out 123 policies and proposals to meet the second carbon budget (2021-25)<sup>161</sup>.

Carbon dioxide (CO<sub>2</sub>) is the main greenhouse gas, with estimated levels of 384.3 MtCO<sub>2</sub>e in 2023 across the UK, a decrease of 5.4% from the 2022 figure of 406.2 MtCO<sub>2</sub>e. CO<sub>2</sub> is a major contributor to climate change. As shown in **Table 2-13**, in 2021 the largest CO<sub>2</sub> emissions in Wales were from the industrial sector followed by the transport and then the domestic sector, a similar trend for overall greenhouse emissions, which includes methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O). This differs from the UK where the largest CO<sub>2</sub> and overall greenhouse emissions were found in the transport sector, followed by domestic and industrial (**Table 2-13**). Between 2005 and 2021, end-user greenhouse emissions have been reported to have fallen by 34% in Wales compared to the UK's 39%<sup>162</sup>. Overall, there has been a reduction in end-user greenhouse gas emissions and greenhouse gas emissions per km<sup>2</sup> in Wales by 0.7% (**Table 2-14**).

**Table 2-13 Carbon Dioxide and Greenhouse Gas Emissions 2021**<sup>163</sup>

|                                               | CO <sub>2</sub> emissions 2021 (Million tonnes) |       | Greenhouse Gas emissions 2021 (Million tonnes) |       |
|-----------------------------------------------|-------------------------------------------------|-------|------------------------------------------------|-------|
|                                               | Wales                                           | UK    | Wales                                          | UK    |
| <b>Industrial</b>                             | 10.9                                            | 81.2  | 11.2                                           | 84.3  |
| <b>Commercial</b>                             | 0.6                                             | 16.9  | 0.6                                            | 17.4  |
| <b>Public Sector</b>                          | 0.6                                             | 15.6  | 0.6                                            | 16.0  |
| <b>Domestic</b>                               | 4.8                                             | 93.8  | 4.9                                            | 96.9  |
| <b>Transport</b>                              | 5.7                                             | 112.3 | 5.7                                            | 113.7 |
| <b>Land Use, Land Use Change and Forestry</b> | -0.9                                            | -5.9  | -0.6                                           | 1.1   |
| <b>Agriculture</b>                            | 0.9                                             | -9.2  | 5.8                                            | 50.7  |
| <b>Waste Management</b>                       | 0.01                                            | -0.03 | 0.9                                            | 18.8  |
| <b>Total</b>                                  | 22.6                                            | 323.5 | 29.2                                           | 399.1 |
| <b>Change from Previous Year</b>              | 6.3%                                            | 7.4%  | 5.9%                                           | 5.3%  |

<sup>161</sup> Welsh Government (2022) *Welsh Government's Net Zero Strategic Plan*. Available online: <https://www.gov.wales/sites/default/files/publications/2022-12/welsh-government-net-zero-strategic-plan.pdf> [Accessed April 2024].

<sup>162</sup> DECC (2023) *UK local authority greenhouse gas emissions estimates 2021* Available online: <https://assets.publishing.service.gov.uk/media/64a67cc37a4c230013bba230/2005-21-local-authority-ghg-emissions-statistical-release-update-060723.pdf> [Accessed April 2024]

<sup>163</sup> DECC (2023) *UK local authority and regional greenhouse gas emissions national statistics*. Available online: <https://www.gov.uk/government/collections/uk-local-authority-and-regional-greenhouse-gas-emissions-national-statistics> [Accessed April 2024]

Table 2-14: End-user greenhouse gas emissions and greenhouse gas emissions per km<sup>2</sup> <sup>164</sup>

| Region/Country | 2005                                  |                                          | 2021                                  |                                          | Difference between 2005 and 2021 per km <sup>2</sup> (tCO <sub>2</sub> e) |
|----------------|---------------------------------------|------------------------------------------|---------------------------------------|------------------------------------------|---------------------------------------------------------------------------|
|                | Total emissions (MtCO <sub>2</sub> e) | Per km <sup>2</sup> (tCO <sub>2</sub> e) | Total emissions (MtCO <sub>2</sub> e) | Per km <sup>2</sup> (tCO <sub>2</sub> e) |                                                                           |
| UK             | 657                                   | 2.6                                      | 399                                   | 1.6                                      | -1.0                                                                      |
| Wales          | 45                                    | 2.1                                      | 29                                    | 1.4                                      | -0.7                                                                      |

Wales exhibits higher emissions per capita compared to many other regions, primarily stemming from its industrial sector, which records the highest emissions per capita at 3.6 tCO<sub>2</sub>e per person. This trend reflects the concentration of industrial installations in the region <sup>165</sup>.

The Climate Change Committee Report <sup>166</sup> and State of Natural Resources Report (SoNaRR) <sup>167</sup> identify the evidence of climate change in Wales to date:

- 2010-2019 average land temperature was 0.9°C warmer than in the period of mid 1970s to mid-2010s;
- 2022 was the hottest year on record for the UK;
- new maximum daily temperature was recorded in Wales of 37.1°C in Harwarden Airport, Flintshire;
- Small observed increase in annual mean rainfall in recent decades. 2% increase between mid-1970s to mid-2010s and 2010-2019.
- Annual temperature has not changed markedly though there is evidence of seasonal changes and heavy rainfall,
- Winters have been 5% wetter and summers have been 11% wetter;
- Severe and widespread flooding incidents due to Storm Ciara (8-9 February 2020) and Dennis (15-16 February 2020);
- Mean sea level rise reported in the UK.

Drought measures could influence CO<sub>2</sub> emissions through additional temporary pumping and treatment requirements, however as additional pumping and treatment would already be taking place to meet the increased demands the effect is anticipated to be minor. The Drought Plan is a tactical response plan that sets out to ensure the maintenance of essential water supplies during times of drought, which may become more prevalent and intense due to the effects of climate change. The Drought Plan itself functions as a form of adaptation to some of the effects of climate change.

### 2.2.10.2 Future Baseline

#### Air Quality

Emission controls have enabled air quality improvements across Wales and the UK, however, problems are still evident. The framework for tackling air pollution is governed by international, European and

<sup>164</sup> DECC (2023) *UK local authority greenhouse gas emissions estimates 2021* Available online: <https://assets.publishing.service.gov.uk/media/64a67cc37a4c230013bba230/2005-21-local-authority-ghg-emissions-statistical-release-update-060723.pdf> [Accessed April 2024]

<sup>165</sup> DECC (2023) *2021 Local Authority and Regional Greenhouse Gas Emissions* Available online: <https://assets.publishing.service.gov.uk/media/64a677654dd8b3000c7fa545/2021-local-authority-ghg-emissions-stats-summary-update-060723.pdf> [Accessed April 2024]

<sup>166</sup> Climate Change Committee (2023) *Adapting to climate change Progress in Wales*. Available online: <https://www.theccc.org.uk/publication/adapting-to-climate-change-progress-in-wales/> [Accessed April 2024]

<sup>167</sup> NRW (2020) *The Second State of Natural Resources Report (SoNaRR2020): Assessment of the achievement of sustainable management of natural resources: Climate Change*. Technical Report. Natural Resources Wales. Available online: <https://naturalresources.wales/media/693282/sonarr2020-theme-climate-change.pdf> [Accessed April 2024]

domestic policies and legislation. In the UK, the responsibility for meeting air quality limit values is devolved to the national administrations, however, the Welsh Government are working with other Government administrations to manage emissions and transboundary pollution to achieve overall UK emission reduction commitments for damaging air pollutants.

The Clean Air Plan for Wales<sup>168</sup> was published in 2020 with a clear aim of improving air quality and reducing the impacts of air pollution on human health, biodiversity, the natural environment and the economy in Wales. The plan includes actions that will tackle well-known sources of air pollution, including; transport, industry, agriculture and emissions from homes and business. There is a particular focus on protecting vulnerable individuals and sensitive habitats from the effects of air pollution.

In Wales, several air pollutants either breach or have the potential to breach legislative limits e.g. NO<sub>2</sub> national and European ambient air limit exceedances are a widespread issue, largely due to emissions from transport, particulate matter (fine dust) continues to be a risk in Port Talbot and in Pontardawe, levels of Nickel (Ni) from industrial processing exceed targets.

The Environment (Air Quality and Soundscapes) (Wales) Bill was given Royal Assent in February 2024<sup>169</sup>. The Bill proposes to amend existing legislation relating to the national air quality strategy and local air quality targets and provide a new framework for setting national air quality targets. Overall, the Bill aims to facilitate improvements in air quality at a national level and contribute to the Wales' response to climate change.

### *Climate*

UKCP18 provides the following predictions on changes in climate in Wales for the period 2060 to 2079 (based on a high emissions scenario for a location in central Wales):

- winter temperature: a change in temperature of between 0.7 and 4.1°C;
- summer temperature: a change in temperature of between 0.9 and 5.9°C;
- winter precipitation: an increase of up to 29%; and
- summer precipitation: 38% drier to 3% wetter.

Sea levels are also forecast to rise, with relative sea levels in Cardiff forecast to increase by up to 113 cm by 2100 (compared to the 1981 to 2000 period)<sup>170</sup>.

The third UK Climate Change Risk Assessment (CCRA3)<sup>171</sup> has assessed 61 risks and opportunities from climate change to Wales. Of these, 32 require more action to address them and 26 have increased in urgency score since the previous CCRA five years ago. In summary, risks in Wales that have a high future magnitude score and where more action is required now to address them, after considering any existing adaptation responses, include the following:

- The impacts of climate change on the natural environment, including terrestrial, freshwater, coastal and marine species, forests and agriculture.
- An increase in the range, quantities and consequences of pests, pathogens and invasive species, negatively affecting terrestrial, freshwater and marine priority habitats species, forestry and agriculture.

<sup>168</sup> Welsh Government (2020) *Clean Air Plan for Wales*. Available online: <https://www.gov.wales/sites/default/files/publications/2020-08/clean-air-plan-for-wales-healthy-air-healthy-wales.pdf> [Accessed May 2024]

<sup>169</sup> GOV.UK (2024) *Environment (Air Quality and Soundscapes) (Wales) Act 2024* Available at <https://www.legislation.gov.uk/asc/2024/2> [Accessed June 2024]

<sup>170</sup> UKCP18 website. *UK Climate projections (2018) Headline findings*. Available online: <https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18-infographic-headline-findings-land.pdf> [Accessed May 2024].

<sup>171</sup> UK Climate Risk (2021) *Third UK Climate Change Risk Assessment Technical Report: Summary for Wales*. Available online: <https://www.ukclimaterisk.org/wp-content/uploads/2021/06/CCRA-Evidence-Report-Wales-Summary-Final.pdf> [Accessed May 2024]



- The risk of climate change impacts, especially more frequent flooding and coastal erosion, causing damage to our infrastructure services, including energy, transport, water and Information and Communication Technologies.
- The impact of extreme temperatures, high winds and lightning on the transport network.
- The impact of increasing high temperatures on people's health and wellbeing. • Increased severity and frequency of flooding of homes, communities and businesses.
- The impact on coastal businesses due to sea level rise, coastal flooding and erosion.
- Disruption to the delivery of health and social care services due to a greater frequency of extreme weather.
- Damage to our cultural heritage assets as a result of temperature, precipitation, groundwater and landscape changes.
- Impacts internationally that may affect the UK, such as risks to food availability, safety and security, risks to international law and governance from climate change that will affect the UK

The Welsh Government declared a climate emergency in 2019. There is a statutory target to achieve net zero emissions (at least a 100% reduction in emissions) by 2050, with further targets for 2030 and 2040 of 63% and 89%, respectively. However, the Welsh Government have commissioned an independent group, the Net Zero Challenge Group, to identify pathways to achieve net zero by 2035, well ahead of the 2050 target date. The reduction in emissions in Wales for 2035 is currently estimated at 81%.

#### 2.2.10.3 Key Issues

The key sustainability issues relevant to the Drought Plan arising from the baseline assessment for air quality and climate are:

- The need to minimise emissions of pollutant gases and particulates and enhance air quality arising from the implementation of the Drought Plan measures;
- The need to reduce greenhouse gas emissions arising from implementation of the Drought Plan measures;
- The need to take into account, and adapt to, the potential effects of climate change;
- The need to increase environmental resilience to the effects of climate change; and
- The need to reduce and manage flood risk.

### 2.2.11 Archaeology and Cultural Heritage

#### 2.2.11.1 Baseline

Implementation of drought management measures could affect the character and setting of historic landscapes and structures. Archaeological remains are sensitive to changes in water quality, water levels, pollution and land-use practices.

The historic environment of Wales is both unique and irreplaceable and contributes greatly to the Welsh sense of identity and culture and is an important economic and social asset. There are four UNESCO World Heritage Sites in Wales; Castles and Town Walls of King Edward in Gwynedd, Blaenavon Industrial Landscape, Pontcysyllte Aqueduct and Canal and The Slate Landscape of Northwest Wales<sup>172</sup> and approximately 4,184 scheduled monuments. Additionally, there are 30,117 listed buildings, 528 conservation areas and 390 historic parks and gardens. The DCWW Supply Area contains, either wholly or overlaps with, the following numbers of national and local designations:

- 3 World Heritage Sites;
- 3767 scheduled monuments;

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<sup>172</sup> Cadw (2024) *Understanding World Heritage Sites in Wales* Available online: <https://cadw.gov.wales/advice-support/historic-assets/conservation-areas-other-historic-assets/other-historic-assets/world#section-world-heritage-sites-in-wales> [Accessed April 2024]

- 435 Grade I listed buildings;
- 1,896 Grade II\* listed buildings;
- 23,793 Grade II listed buildings;
- 454 Conservation Areas;
- 336 registered parks and gardens; and
- 1 protected wreck site.

Cadw's regional field monument wardens monitor the condition of all statutorily protected monuments on a rolling programme. Heritage features within the Drought Plan area are shown in **Figure 2-16**.

According to a 2015 report by Cadw, the percentage of listed buildings in Wales classified as 'at risk' decreased slightly from 9% to 8% between 2013 and 2015. Similarly, those classified as 'vulnerable' also decreased slightly from 14% to 12%. Conversely, the percentage of listed buildings deemed 'not at risk' saw a slight increase from 77% to 79% during the same period. The proportion of buildings categorized as being in 'Very bad' condition remained steady at around 2%, while those classified as in 'Good' condition increased from 53% to 55% from 2013 to 2015. Additionally, buildings in 'Poor' or 'Fair' condition decreased between 2013 and 2015<sup>173</sup>. The distribution of Listed Buildings within DCWWs Supply Areas is shown on **Figure 2-17**.

Cadw, alongside other stakeholders, collaborated on the creation of the Register of Landscapes of Historic Interest in Wales. This initiative aimed to identify and provide information on Wales' most significant and well-preserved historic landscapes. The Register comprises two parts, encompassing thirty-six areas deemed 'outstanding' and twenty-two labelled 'special' in terms of their historic significance. Each landscape area listed on the Register holds national importance within the Welsh context<sup>174</sup>.

Cadw developed best practice guidance for Landscapes of Historic Interest in Wales to aid in the identification and provision of information on the most significant and well-preserved historic landscapes across the country<sup>175</sup>. Section 2.2.12 provides more detail on the extent of 'outstanding' and 'special' landscape areas.

The DCWW area may contain a large number of undesignated cultural heritage assets, many of which may be of considerable significance (some of national quality, although not formally designated). The statutory Historic Environment Record (HER) curated by Heneb: The Trust for Welsh Archaeology on behalf of The Welsh Ministers includes both designated and undesignated assets<sup>176</sup>.

<sup>173</sup> Cadw (2015) *Condition & use Survey of Listed Buildings in Wales: 2015 Update*. Available online at: <https://cadw.gov.wales/sites/default/files/2019-05/20161206conditionandusesurveyoflistedbuildings2015.pdf> [Accessed April 2024]

<sup>174</sup> Cadw (2024) *Registered historic landscapes*. Available online: <https://cadw.gov.wales/advice-support/historic-assets/conservation-areas-and-other-historic-assets/other-historic-assets-0> [Accessed April 2024]

<sup>175</sup> Cadw (2024) *Welsh Government and Countryside Council for Wales: Historic Landscapes*. Available online: <https://cadw.gov.wales/advice-support/historic-assets/scheduled-monuments/best-practice-guidance#section-managing-scheduled-monuments-in-wales> [Accessed April 2024]

<sup>176</sup> Cadw (2024) *Historic environment records*. Available online: <https://cadw.gov.wales/advice-support/placemaking/historic-environment-records> [Accessed November 2024]

Figure 2-16 Cultural Heritage Features in DCWW Supply Area

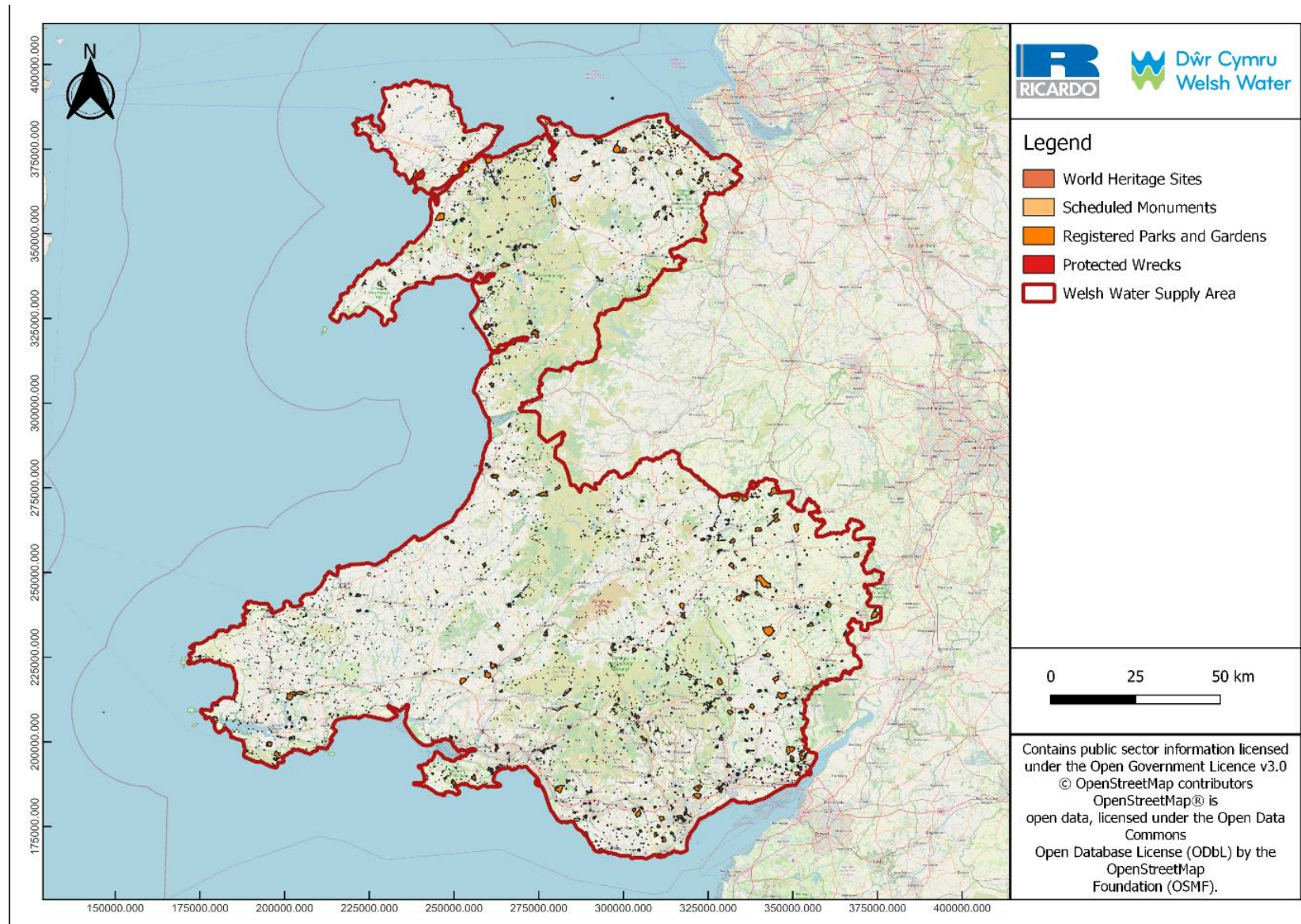
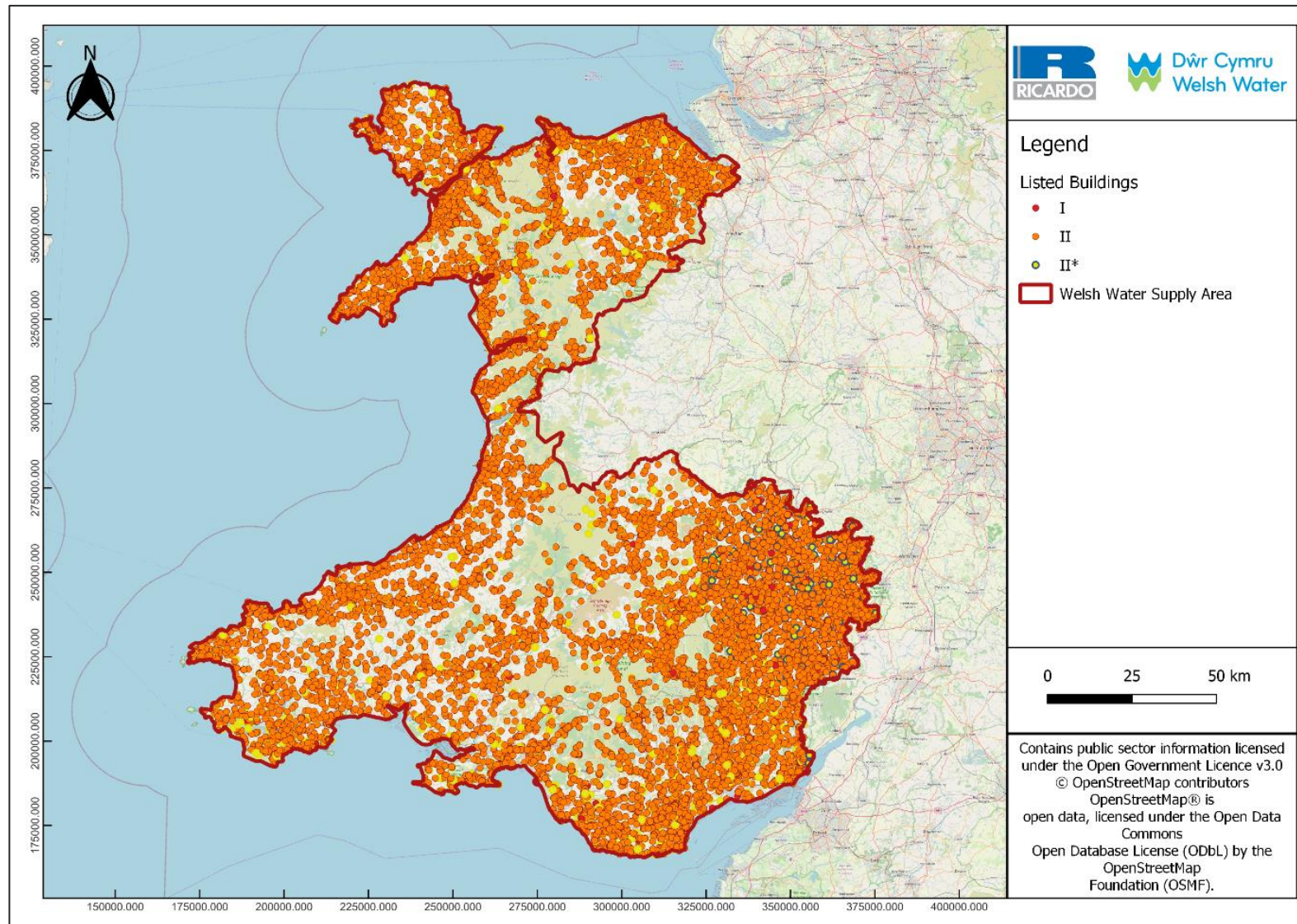




Figure 2-17 Listed Buildings in DCWW Supply Area



### 2.2.11.2 Future Baseline

Wales' cultural heritage assets face vulnerability due to development, land management practices, and the impacts of climate change. However, there has been a positive trend observed in the percentage of listed buildings classified as 'At risk' or 'Vulnerable' by Cadw, which decreased between 2013 and 2015.

Managing the risk of drought can both impact and enhance the historic components of Welsh landscapes and built assets, including historic woodlands, field systems, hedgerows, traditional buildings, ancient monuments, and archaeological sites. Therefore, it is essential to consider the protection, preservation, and settings of cultural heritage assets when siting new developments, including drought management infrastructure.

### 2.2.11.3 Key Issues

The key sustainability issues relevant to the drought plan and the SEA, arising from the analysis of the cultural heritage baseline are:

- The need to conserve and enhance the historic significance of buildings, monuments, features, sites, places, areas and landscapes of archaeological and cultural heritage interest, and their settings; and
- The need to avoid damage to areas with potential for paleoenvironmental deposits during drought condition.

## 2.2.12 Landscape and Visual Amenity

### 2.2.12.1 Baseline

Implementation of drought plan measures has the potential to influence landscape and visual amenity, beyond the impacts that would occur as a result of the drought alone.

Landscape and/or seascape can be defined by the European Landscape Convention<sup>177</sup> as “*an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors*”, or alternatively as defined in the UK Marine Policy Statement (MPS) (2011)<sup>178</sup>, “*landscapes with views of the coast or seas, and coasts and adjacent marine environmental with cultural, historical and archaeological links with each other*”.

Wales exhibits a beautiful and rugged landscape, which ranges from the mountains and lakes of Snowdonia and the estuaries of the mid-Wales coast to the beaches and cliffs of Pembrokeshire, and the industrial heritage of the South Wales Valleys. Primarily pastoral in nature, the landscape of Wales is predominantly characterised by vast expanses of agriculturally enhanced grasslands, constituting the most prevalent habitat type, followed by semi-improved grassland areas.

There are three established National Parks; Bannau Brycheiniog (Brecon Beacons), Eryri (Snowdonia) and Pembrokeshire Coast, spanning 20% of Wales' total land area, equivalent to 287,830 ha and a proposed new national park in north east Wales based on the existing Clwydian Range and Dee Valley National Landscape'. There are five national landscapes, one of which extends across both England and Wales (Wye Valley), covering 65,926 ha (**Figure 2-18**). Collectively these areas are recognised as “designated landscapes,” each possessing distinct special qualities that warrant preservation and enhancement. Both National Parks and National Landscapes cover approximately 25% of Wales<sup>179</sup>.

<sup>177</sup> Council of Europe (2000) *European Landscape Convention*. Available online: <https://rm.coe.int/CoERMPublicCommonSearchServices/DisplayDCTMContent?documentId=09000016802f80c6> [Accessed June 2024]

<sup>178</sup> Defra (2011) *UK Marine Policy statement*. Available online: <https://www.gov.uk/government/publications/uk-marine-policy-statement> [Accessed June 2024]

<sup>179</sup> NRW (2023) *Area Statements and Designated Landscapes*. Available online: <https://naturalresources.wales/about-us/what-we-do/strategies-and-plans/area-statements/sector-specific-information/area-statements-and-designated-landscapes/?lang=en> [Accessed April 2024]

Other areas of importance for their landscape quality include 495 km of Heritage Coast<sup>180</sup> and 58 landscapes of outstanding/special historic interest.<sup>181</sup> These landscapes have a range of purposes including but not limited to the conservation of natural heritage.<sup>182</sup>

The extensive expanse of designated landscapes across Wales underscores their significance to individuals as a cultural asset. These landscapes and seascapes hold appeal for many, offering beauty, tranquillity, and aesthetic value, which, in turn, fosters social and mental well-being. Additionally, engaging in recreational activities such as walking, climbing, and cycling within these landscapes provides not only physical benefits but also opportunities for appreciating their natural splendour.

The Landscape Map of Wales<sup>183</sup> recognises 48 sub-regional Landscape Character Areas across Wales. Each has a distinctive sense of place that enables it to be recognised as a single area (for example, a range of hills or a major urban area). Local detail is recorded in LANDMAP, an all-Wales landscape resource where landscape characteristics, qualities and influences on the landscape are recorded and evaluated. It includes nationally consistent, quality assured spatial datasets covering geological landscape, landscape habitats, visual and sensory, historic landscape and cultural landscape, evaluating their importance from a national to local scale<sup>184</sup>.

The coastlines and seascapes of Wales are also important to the nation's sense of identity and are valued resources for nature conservation with substantial historic environment interest. Wales' coastlines also provide an important contribution to the nation's economy. For example, 6 in 10 visitor trips were attributed to coastal tourism in 2023 with the most popular draws being landscape, countryside and the beach<sup>185</sup>. A total of 29 Marine Character Areas has been identified by NRW which reflect the unique combinations of natural, cultural and perceptual influences in different areas<sup>186</sup>.

Tranquillity is special quality of the designated landscapes associated with the degree to which places and ecosystems deliver a state of quiet, calm, peace and well-being and, as a landscape asset, is highly valued and contributes to both landscape value and identity. In 2021, NRW commissioned a project to develop a new nationally consistent Tranquillity and Place resource<sup>187</sup>. The study found that 67% of Wales is in the top three most visually tranquil categories as are 9% of Wales' urban areas. Dark skies are a vital resource for biodiversity, enriching our experience of nature, landscapes, and green spaces. They contribute to human health and well-being while benefiting local wildlife. In Wales, a 2021 study revealed that over 68 per cent of the country, including 95 per cent of its National Parks and Areas of Outstanding Natural Beauty, falls within the two darkest night sky categories. Encouragingly, there are also signs that light pollution in urban areas is decreasing<sup>188</sup>.

<sup>180</sup> Welsh Government (2022) *Heritage Coasts* Available online: [https://datamap.gov.wales/layers/inspire-nrw:NRW\\_HERITAGE\\_COAST](https://datamap.gov.wales/layers/inspire-nrw:NRW_HERITAGE_COAST) [Accessed October 2024]

<sup>181</sup> Cadw (2024) *Registered historic landscapes*. Available online: <https://cadw.gov.wales/advice-support/historic-assets/conservation-areas-and-other-historic-assets/other-historic-assets-0> [Accessed April 2024]

<sup>182</sup> NRW (2023) *State of Nature Wales*. Available online: <https://stateofnature.org.uk/wp-content/uploads/2023/09/TP26053-SoN-Wales-summary-report-v10.pdf> [Accessed April 2024]

<sup>183</sup> NRW (2024) *Landscape – Wales Environmental Information Portal*. Available online: <https://smnr-nrw.hub.arcgis.com/apps/c7770d2881394c899123bae210afe370/explore> [Accessed April 2024]

<sup>184</sup> NRW (2023) *LANDMAP - the Welsh landscape baseline*. Available online: <https://naturalresources.wales/guidance-and-advice/business-sectors/planning-and-development/evidence-to-inform-development-planning/landmap-the-welsh-landscape-baseline/?lang=en> [Accessed April 2024]

<sup>185</sup> Welsh Government (2023) *Domestic GB Tourism Statistics (day trips in Wales): October to December 2023*. Available online: <https://www.gov.wales/domestic-gb-tourism-statistics-day-trips-wales-october-december-2023-html> [Accessed April 2024]

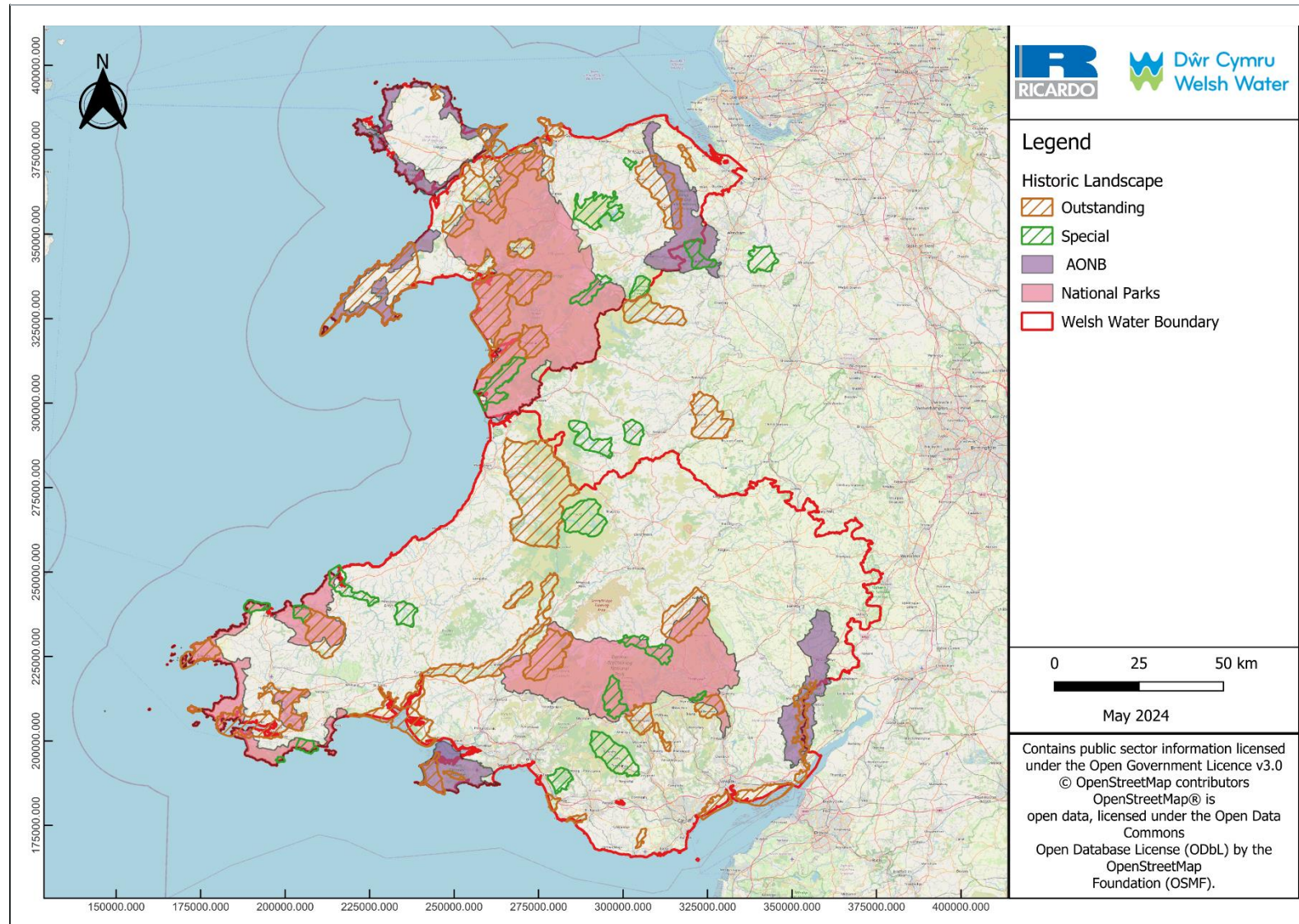
<sup>186</sup> Natural Resources Wales (2015) *National Seascape Assessment for Wales*. Available online: <https://naturalresources.wales/media/675208/mca-00-technical-report-summary-method-appendix.pdf> [Accessed May 2024]

<sup>187</sup> LUC on behalf of NRW (2022) *Tranquillity and Place*. Available online: <https://storymaps.arcgis.com/stories/865c1876d9f64280a3dfc6e2769a46a5> [Accessed May 2024]

<sup>188</sup> NRW (2021) *New map casts light on Wales' dark skies* Available online: <https://naturalresources.wales/about-us/news-and-blogs/news/new-map-casts-light-on-wales-dark-skies/?lang=en> [Accessed October 2024]



Figure 2-18 Landscape Designations in Wales



#### 2.2.12.2 *Future Baseline*

It is envisaged that landscape and designated sites will be maintained and enhanced for the enjoyment of the public.

Recent significant factors driving changes in Wales' landscape include urban sprawl, industrial expansion, infrastructure development such as road upgrades, proliferation of onshore wind farms, and the growth of recreational facilities. Natural environment alterations, such as the replacement of coniferous forests with broadleaf trees, woodland expansion, shifts in bracken coverage, reduced habitat diversity, and decline in bog areas, also contribute to landscape changes. With specific regard to seascape, State of Nature Wales report (2023) highlights the dramatic increase in the scale of marine development, raising concerns about the potential impacts on wildlife. These factors are likely to continue to affect Wales' landscape and seascape character.

Climate change and land-use change may also, in the longer term, result in changes in visual amenity across the unique landscapes and seascapes of Wales. Shifts in weather patterns and soil conditions will inevitably disrupt vegetation, a crucial aspect of the landscape. Furthermore, flooding and coastal erosion may cause significant alterations to both the landscape and seascape. Responses to climate change, such as the introduction of new crops and land uses, may further transform the visual aesthetic of the landscape. The implementation of new flood defences could also influence the seascape.

#### 2.2.12.3 *Key Issues*

The key sustainability issues relevant to the Drought Plan arising from the analysis of the landscape and seascape baseline are:

- The need to conserve and enhance landscape and seascape character, taking into account the effects of climate change;
- The need to ensure the special qualities of designated landscapes are protected during drought conditions; and
- The need to minimise any negative impacts upon landscape and seascape that may result from measures in the Drought Plan.

## 2.3 SUMMARY OF KEY ISSUES

**Table 2-15** provides a summary of the Key Issues identified from a review of the baseline.

Table 2-15 Summary of the key sustainability issues identified for the SEA

| Topics                           | The Key sustainability issues arising from the baseline assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Biodiversity, Flora and Fauna    | <ul style="list-style-type: none"> <li>• The need to protect and enhance biodiversity in Wales, particularly within protected sites, species and habitats designated for nature conservation;</li> <li>• The need to continue to increase and improve the condition of priority habitats and habitats of priority species, and restore populations of these species and other specially protected species;</li> <li>• The need to avoid activities likely to cause irreversible damage to natural heritage;</li> <li>• The need to take opportunities to improve connectivity between fragmented habitats to create functioning habitat corridors;</li> <li>• The need to control the spread of Invasive Non-Native Species (INNS);</li> <li>• The need to recognise the importance of allowing wildlife to adapt to climate change;</li> <li>• The need to build the resilience of ecosystems and;</li> <li>• The need to engage more people in biodiversity issues so that they personally value biodiversity and know what they can do to help, including through recognising the value of the ecosystem services.</li> </ul> |
| Population and Human Health      | <ul style="list-style-type: none"> <li>• The need to ensure that the water requirements of people and visitors can be met at all times, in a sustainable way;</li> <li>• The need to ensure that water supplies remain affordable, in particular for deprived or vulnerable communities;</li> <li>• The need to ensure that the measures contained within the Drought Plan do not negatively affect the health and well-being of the community;</li> <li>• The need to accommodate an increasing population whilst ensuring the continued provision of essential services including water supply;</li> <li>• The need to ensure that the population including vulnerable people are not detrimentally affected by implementation of the Drought Plan;</li> <li>• The need to ensure that the Drought Plan does not have a negative economic impact; and</li> <li>• The need to ensure public awareness of both forthcoming and existing drought conditions in order to maintain resilient, reliable public water supplies without the need for emergency drought measures.</li> </ul>                                            |
| Material Assets and Resource Use | <ul style="list-style-type: none"> <li>• T</li> <li>• The need to minimise the demand for water resources through water efficiency measures (including metering) and the reduction of leakage in the region;</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| Topics                            | The Key sustainability issues arising from the baseline assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   | <ul style="list-style-type: none"> <li>• The need to reduce energy consumption;</li> <li>• The need to ensure the sustainable and efficient use of resources such as construction materials; and</li> <li>• The need to minimise waste arisings, promote reuse, recovery and recycling and minimise the impact of waste on the environment and communities.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Water                             | <ul style="list-style-type: none"> <li>• The need to protect, enhance and restore the quality of the rivers, lakes, estuarine and coastal waters taking into account WFD objectives;</li> <li>• The need to protect, enhance and restore the quantity and quality of groundwater resources taking into account WFD objectives;</li> <li>• The need to ensure sustainable and appropriate abstraction levels and water flow/levels in Wales' waters across the full range of regimes from low to high conditions and meet society's needs for a resilient water supply;</li> <li>• The need to ensure that the continued risk of flooding is reduced or where this is not possible, mitigated effectively using natural flood management, nature based solutions and green engineering where possible; and</li> <li>• The potential effects of climate change and the need to build climate change resilience and adaptation into the water environment and water management.</li> </ul> |
| Soil, Geology and Land Use        | <ul style="list-style-type: none"> <li>• The need to protect, maintain and enhance geomorphological functions and services;</li> <li>• The need to influence how land is managed, promoting sustainable patterns of land use;</li> <li>• The need to conserve and enhance soil quality and function (including carbon sequestration);</li> <li>• The need to protect and avoid damage to Wales' geodiversity and conserve and enhance sites designated for geological interest; and</li> <li>• The need to manage impacts on soil resources, including control of pollution and remediation of contaminated land.</li> </ul>                                                                                                                                                                                                                                                                                                                                                            |
| Air and Climate                   | <ul style="list-style-type: none"> <li>• The need to minimise emissions of pollutant gases and particulates and enhance air quality arising from the implementation of the Drought Plan measures;</li> <li>• The need to reduce greenhouse gas emissions arising from implementation of the Drought Plan measures;</li> <li>• The need to take into account, and adapt to, the potential effects of climate change; and</li> <li>• The need to increase environmental resilience to the effects of climate change.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Archaeology and Cultural Heritage | <ul style="list-style-type: none"> <li>• The need to conserve and enhance the historic significance of buildings, monuments, features, sites, places, areas and landscapes of archaeological and cultural heritage interest, and their settings; and</li> <li>• The need to avoid damage to areas with potential for paleoenvironmental deposits during drought conditions.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Landscape and Visual Amenity      | <ul style="list-style-type: none"> <li>• The need to conserve and enhance landscape and seascape character, taking into account the effects of climate change;</li> <li>• The need to ensure the special qualities of designated landscapes are protected during drought conditions; and</li> <li>• The need to minimise any negative impacts upon landscape and seascape that may result from measures in the Drought Plan.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

## 3. APPROACH TO ASSESSMENT

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### 3.1 INTRODUCTION

This section outlines the approach to the assessment of the draft Drought Plan. It draws on information contained in **Sections 2.2 and 2.3**, as well as the responses received to consultation on the Scoping Report and sets out the SEA objectives and guide questions that comprise the assessment framework. The section then outlines how this assessment framework has been used to appraise the measures contained in the draft Drought Plan before highlighting the difficulties encountered during the assessment process.

### 3.2 THE SCOPE OF THE ASSESSMENT

The aim of this SEA is to identify, describe and evaluate the likely significant effects of implementing the Drought Plan on the environment. Schedule 2 of the SEA Regulations require that the assessment includes information on the “likely significant effects on the environment, including on issues such as: biodiversity; population; human health; fauna; flora; soil; water; air; climatic factors; material assets; cultural heritage, including architectural and archaeological heritage; landscape; and the inter-relationship between the issues referred to”.

The key policy objectives identified from the review of other plans and programmes relevant to the assessment of the Drought Plan and the environmental issues arising from the analysis of the baseline, together with the characteristics of the potential drought management measures, have been used to define the scope of the assessment.

All SEA topics listed in Schedule 2 of the SEA regulations have been scoped in, however, some aspects within certain topics have been scoped out within the broader topic. In keeping with the 2015 and 2020 Drought Plans, under the topic of Population and Human Health, providing access to high quality services, community facilities and accessible social infrastructure is considered to be outside of the purpose and objectives of the Drought Plan.

The assessments presented in this environmental report incorporate the findings on the potential environmental effects of implementing the options, as detailed in the Environmental Assessment Reports (EARs) and their associated appendices, as well as the HRA screening and the Water Framework Directive (WFD) Regulations compliance assessment.

The assessment within this environmental report takes into account the findings of the potential environmental effects of the implementation of the options as is covered in the Environmental Assessment Reports (EARs) and their associated appendices, the HRA screening, the WFD Regulations compliance assessment.

### 3.3 ASSESSMENT FRAMEWORK

SEA objectives and guide questions have been used to assess the effects of the Drought Plan on the environment. Each of the draft Drought Plan measures has been assessed against the SEA objectives to determine the scale and significance of the effect. By assessing each of the measures against the objectives, it is more apparent where the draft Drought Plan will contribute to sustainability, where it might have a negative effect and where enhancements could be made. Guide questions focus the assessment on specific aspects of the objective that reflect issues identified from the review of baseline and contextual information relating to the DCWW area.

The assessment framework of objectives and guide questions used in the assessment has been developed based on:

- The SEA objectives and guide questions developed for the SEA of the 2020 Drought Plan;
- The key policy messages and environmental protection objectives identified in the review of policies, and other plans and programmes (see **Section 2.2 and Appendix C**).
- The current state of the environment in the DCWW's water supply area (see **Section 2.3**).
- The key environmental issues identified (see **Section 2.4**).

- Responses received to consultation on the SEA Scoping Report (see **Appendix B**).

The final assessment framework is presented in **Table 3-1**. The well-being goals of the Well-being of Future Generations (Wales) Act 2015 (Table 0-4) are fully reflected in the framework to help ensure alignment with national policy and legislation on sustainability. Additionally, those objectives that are directly related to the objective for SMNR, established in the Environment (Wales) Act 2016, are highlighted.



Table 3-1 SEA Objectives

| SEA Topic                            | Proposed SEA Objective                                                                                                                                                                                                                                                                                | Proposed Indicator Questions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Welsh Government Well-being Goal(s)                                                                             | Relevant National Well-being Indicators                                                    | Relevant to the Objective for SMNR? |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-------------------------------------|
| <b>Biodiversity, flora and fauna</b> | 1.1 To protect and enhance designated sites and their qualifying features, biodiversity, priority habitats and species ecological functions, capacity and habitat connectivity and to protect and enhance natural capital and the biodiversity and ecosystem services that contribute to the economy. | <p>Will it avoid damage to aquatic, transitional and terrestrial species and habitats including fish populations (particularly migratory fish)?</p> <p>Will it enhance aquatic, transitional and terrestrial species and habitats?</p> <p>Will it avoid wider impacts to groundwater dependent terrestrial ecosystems (wetlands, peatlands, fens, etc) e.g., due to potential reduced baseflow to groundwater aquifers?</p> <p>Will it protect the most important sites for nature conservation?</p> <p>Will it minimise habitat fragmentation and protect connectivity?</p> <p>Will it provide opportunities for new habitat creation or restoration and link existing habitats?</p> <p>Will it ensure the sustainable management of natural habitats, taking into account climate change adaptability?</p> <p>Will it affect WFD compliance e.g. good ecological potential/status?</p> <p>Will it protect natural capital and ecosystems?</p> <p>Will it improve access to nature for people?</p> <p>Will it protect priority species and habitats?</p> <p>Will it maintain and enhance ecosystem resilience in line with the requirements of the Environment (Wales) Act' and consider the Priority and Resilient Ecological Networks?</p> | <p>A prosperous Wales</p> <p>A resilient Wales</p> <p>A healthier Wales</p> <p>A globally responsible Wales</p> | <p>Status of biological diversity in Wales</p> <p>Areas of healthy ecosystems in Wales</p> | Yes                                 |
|                                      | 1.2 To avoid and, where required, manage the introduction or spread of invasive and non-native species (INNS).                                                                                                                                                                                        | Will it limit, reduce or increase the risk of spread of Invasive Non-native Species (INNS)?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                 |                                                                                            |                                     |

| SEA Topic                          | Proposed SEA Objective                                                                                                              | Proposed Indicator Questions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Welsh Government Well-being Goal(s)                                                                                                       | Relevant National Well-being Indicators                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Relevant to the Objective for SMNR? |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| <b>Population and human health</b> | 2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing). | <p>Will the draft Drought Plan measure ensure continuity of clean drinking water supply within statutory standards supply at times of drought?</p> <p>Will it help to promote healthy communities and protect from risks to health and wellbeing, including any vulnerable groups?</p> <p>Will the draft Drought Plan measure affect the affordability of clean drinking water?</p> <p>Will the draft Drought Plan measure negatively affect human health by resulting in increased nuisance and disruption (e.g. as a result of increased noise levels)?</p> <p>Will it protect or enhance opportunities for recreation?</p> <p>Will the option affect public access to, or enjoyment of, local green/blue space?</p> <p>Will the option impact on physical health and mental well-being by affecting opportunities for informal outdoor recreation?</p> | <p>A prosperous Wales</p> <p>A globally responsible Wales</p> <p>A resilient Wales</p> <p>A healthier Wales</p> <p>A more equal Wales</p> | <p>Percentage of people in employment</p> <p>Mean mental well-being score for people.</p> <p>Percentage of dwellings which are free from hazards</p> <p>Percentage of people participating in sporting activities three or more times a week</p> <p>Percentage of people satisfied with local area as a place to live</p> <p>Percentage of people satisfied with their ability to get to/ access the facilities and services they need</p> <p>Percentage who feel able to influence decisions affecting their local area</p> | Yes                                 |
|                                    | 2.2 To protect and enhance the economic and social needs of the local community.                                                    | <p>Will it assist in ensuring provision of essential infrastructure services to support a sustainable economy?</p> <p>Will it protect or enhance opportunities for recreation and tourist activities, including navigation?</p> <p>Will it protect PRoW and associated infrastructure?</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                     |

| SEA Topic                               | Proposed SEA Objective                                                                                                                                                    | Proposed Indicator Questions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Welsh Government Well-being Goal(s)                                         | Relevant National Well-being Indicators                                                                                                                                                                                                                                                        | Relevant to the Objective for SMNR? |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| <b>Material assets and resource use</b> | 3.1 To minimise resource use and waste production.                                                                                                                        | <p>Will it minimise greenhouse gas emissions through energy efficiency?</p> <p>Will it minimise waste and/or encourage the reuse and recycling of waste?</p> <p>Will it encourage sustainable design or use of sustainable materials?</p> <p>Will it enable efficient water resource management and ensure maintenance of supply?</p> <p>Will it help to minimise the demand for resources (including water)?</p>                                                                                                                                                                                                                                                                                        | A globally responsible Wales                                                | <p>Capacity (in MW) of renewable energy equipment installed.</p> <p>Amount of waste generated that is not recycled, per person.</p> <p>Emissions of greenhouse gases attributed to the consumption of global goods and services in Wales</p> <p>Emissions of greenhouse gases within Wales</p> | Yes                                 |
| <b>Water</b>                            | 4.1 To protect and enhance the quality of surface, groundwater, estuarine and coastal water and help achieve the objectives of the Water Framework Directive Regulations. | <p>Will it minimise risks of negative effects on water quality?</p> <p>Will it affect WFD compliance, including avoiding deterioration in any status element?</p> <p>Will it prevent a water body or protected area from achieving the objective set out in the relevant RBMP?</p> <p>Will it affect bathing water compliance?</p> <p>Will it avoid contamination of groundwater?</p> <p>Will it affect Drinking Water Protected Area safeguard zones?</p> <p>Will it help to minimise risks associated with unsustainable abstraction of ground and surface waters?</p> <p>Will it impact on any mitigation measures necessary for the water body to achieve or maintain good ecological potential?</p> | <p>A prosperous Wales</p> <p>A resilient Wales</p> <p>A healthier Wales</p> | <p>Percentage of surface water bodies, and groundwater bodies, achieving good or high overall</p>                                                                                                                                                                                              | Yes                                 |
|                                         | 4.2 To avoid negative impact on surface and groundwater levels and flows, including when this impacts on habitats and/or navigation.                                      | <p>Will it abstract from a waterbody with resource availability concern(with reference to CAMS status and WFD considerations)?</p> <p>Will it alter the flow or level regime or residence time of surface waters or groundwaters?</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                             |                                                                                                                                                                                                                                                                                                |                                     |

| SEA Topic                         | Proposed SEA Objective                                                                                                                                                                  | Proposed Indicator Questions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Welsh Government Well-being Goal(s)                                     | Relevant National Well-being Indicators                                                                                        | Relevant to the Objective for SMNR? |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
|                                   |                                                                                                                                                                                         | Will it enable flexible control over the level of abstraction at short notice in response to changing environmental conditions?<br>Will it enable a sustainable use of water resources that balances demand for water with environmental protection?                                                                                                                                                                                                                                                                                           |                                                                         |                                                                                                                                |                                     |
|                                   | 4.3 To increase water efficiency and increase resilience of Public Water Supply (PWS) and natural systems to droughts.                                                                  | Will it increase efficiency in water use?<br>Will it enable efficient water resource management and ensure maintenance of water supplies?                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                         |                                                                                                                                |                                     |
| <b>Soil, geology and land use</b> | 5.1 To contribute to sustainable use of land and protect and enhance the functionality and quality of soils, including the protection of high-grade agricultural land and geodiversity. | Will it protect, maintain and enhance soil function and health?<br>Will it avoid damage to and protect geologically important sites?<br>Will additional land be required for the development or implementation of the measure or will the option require below ground works leading to land sterilisation?<br>Will it measure utilise previously developed land?<br>Will it avoid damage to and/or minimise the loss of best and most versatile agricultural land?<br>Will it preserve existing carbon stores and enhance them where feasible? | A prosperous Wales<br>A resilient Wales<br>A globally responsible Wales | Concentration of carbon and organic matter in soil                                                                             | Yes                                 |
| <b>Air and climate</b>            | 6.1 To reduce and minimise air emissions.                                                                                                                                               | Will it reduce or minimise air pollutant emissions?<br>Will it increase emissions to air in areas sensitive to emissions (e.g. in proximity to an AQMA or to sensitive habitat or more deprived area)?                                                                                                                                                                                                                                                                                                                                         | A prosperous Wales<br>A resilient Wales<br>A healthier Wales            | Levels of nitrogen dioxide (NO <sub>2</sub> ) pollution in the air<br>Capacity (in MW) of renewable energy equipment installed | Yes                                 |

| SEA Topic                                | Proposed SEA Objective                                                                                                     | Proposed Indicator Questions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Welsh Government Well-being Goal(s)                                                     | Relevant National Well-being Indicators                                                                                                                                                                                          | Relevant to the Objective for SMNR? |
|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
|                                          | 6.2 To reduce carbon emissions and to adapt to future changes in climate.                                                  | <p>Will it minimise the need for energy?</p> <p>Will it increase efficiency in the use of energy?</p> <p>Will it reduce or minimise greenhouse gas emissions?</p> <p>Will it reduce vulnerability to risks associated with climate change effects (e.g. reduce the negative effects of droughts)?</p> <p>Will it improve resilience/adaptability to likely effects of climate change, e.g. by increasing water storage capacity, or transferring water from areas with surplus?</p> <p>Will it seek to improve or manage flood risk?</p> | <p>A Wales of cohesive communities</p> <p>A globally responsible Wales</p>              | <p>Emissions of greenhouse gases attributed to the consumption of global goods and services in Wales</p> <p>Emissions of greenhouse gases within Wales</p>                                                                       |                                     |
| <b>Archaeology and cultural heritage</b> | 7.1 To conserve and enhance historic assets/cultural heritage and their setting, including archaeological important sites. | <p>Will it avoid damage to and protect the historic environment, heritage assets and their settings, places and spaces that enhance local distinctiveness, landscape/townscape character and appearance?</p> <p>Will it avoid damage to and protect archaeologically important sites?</p> <p>Will it avoid damage to important wetland areas with potential for paleo-environmental deposits?</p>                                                                                                                                        | <p>A prosperous Wales</p> <p>A Wales of vibrant culture and thriving Welsh language</p> | <p>Percentage of designated historic environment assets that are in stable or improved conditions</p> <p>Percentage of people attending or participating in arts, culture or heritage activities at least three times a year</p> | Yes                                 |

| SEA Topic                                  | Proposed SEA Objective                                                                                                         | Proposed Indicator Questions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Welsh Government Well-being Goal(s)                                                                                | Relevant National Well-being Indicators                                                                                                                                                                                                  | Relevant to the Objective for SMNR? |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| <b><i>Landscape and visual amenity</i></b> | 8.1 To conserve, protect and enhance landscape and townscape character, visual amenity and the setting of national landscapes. | <p>Is the measure likely to have significant visual impacts?</p> <p>Will it avoid negative effects on, and enhance where possible, the special qualities of protected/designated landscapes (including woodlands) or seascapes such as National Parks or National Landscapes?</p> <p>Will it help to protect and improve non-designated areas of natural beauty and distinctiveness (e.g. woodlands) and avoid the loss of landscape features and local distinctiveness?</p> <p>Will it avoid indirect effects on the landscape resulting from effects of abstraction and low river flows?</p> | <p>A resilient Wales</p> <p>A Wales of cohesive communities</p> <p>A healthier Wales</p> <p>A Prosperous Wales</p> | <p>Percentage of people satisfied with local area as a place to live</p> <p>Mean mental well-being score for people</p> <p>Percentage of people satisfied with their ability to get to/ access the facilities and services they need</p> | Yes                                 |



Table 3-2 Example of a SEA Appraisal Framework Matrix to be completed for each Drought Option

| 1. SEA Topic                  | 2. SEA Objective                                                                                                                                                                                                                                 | 3. Scale of effect – geographical and/or population affected (small/ medium/ large) | 4. Certainty of effect (Low/ Medium/ High) | 5. Duration (Short/ Medium/ Long-term) | 6. Permanence (permanent/ temporary) | 7. Magnitude of effect (Low/ Medium/ High) | 8. Value/ sensitivity of receptor (Low/ Medium/ High) | 9. Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 10. Residual negative effect significant (likely to remain after reasonable mitigation) | 11. Residual positive effect significant (likely to remain after reasonable mitigation) |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------|--------------------------------------|--------------------------------------------|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Biodiversity, Flora and Fauna | 1.1 To protect and enhance biodiversity, key habitats and species ecological functions, capacity and habitat connectivity and to protect and enhance natural capital and the biodiversity and ecosystem services that contribute to the economy. |                                                                                     |                                            |                                        |                                      |                                            |                                                       | <b>Effects of Construction</b><br>A description of the likely significant effects of the option on the SEA objectives during construction will be included here.<br><b>Effects of Operation</b><br>A description of the likely significant effects of the option on the SEA objectives during operation will be included here.<br><b>Mitigation</b><br>Potential mitigation will be included here.<br><b>Assumptions</b><br>Assumptions made in undertaking the assessment will be included here.<br><b>Uncertainty</b><br>Uncertainties identified in undertaking the assessment will be included here. | -                                                                                       | ++                                                                                      |

Table 3-3 Key to Residual Effects in Assessment Framework Matrices

| Score                               | Description                                                                                                                                                                                                                                          | Symbol |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Major Positive Effect               | Significant positive effect of the draft Drought Plan measure on this objective                                                                                                                                                                      | +++    |
| Moderate Positive Effect            | Moderate positive effect of the draft Drought Plan measure on this objective                                                                                                                                                                         | ++     |
| Minor Positive Effect               | Minor positive effect of the draft Drought Plan measure on this objective                                                                                                                                                                            | +      |
| Neutral                             | Overall neutral effect of the draft Drought Plan measure on this objective                                                                                                                                                                           | 0      |
| Minor Negative Effect               | Minor negative effect of the draft Drought Plan measure on this objective                                                                                                                                                                            | -      |
| Moderate Negative Effect            | Moderate negative effect of the draft Drought Plan measure on this objective                                                                                                                                                                         | --     |
| Major Negative Effect               | Significant negative effect of the draft Drought Plan measure on this objective                                                                                                                                                                      | ---    |
| No Relationship / Negligible Effect | There is no clear relationship between the draft Drought Plan measure and the achievement of the objective or the effect is assessed as negligible.                                                                                                  | ~      |
| Uncertain                           | The draft Drought Plan measure has an uncertain relationship to the objective or the relationship is dependent on the way in which the aspect is managed. In addition, insufficient information may be available to enable an assessment to be made. | ?      |

For each SEA objective, a residual effects assessment is determined against a specific criteria for assessing significance. This criteria follows specific guidance on what constitutes a major/moderate/minor/neutral effect as well as taking into account the value and sensitivity of the receptor (e.g. species, water quality, landscape value, heritage feature) and the magnitude of the assessed effect. The definitions of significance help ensure a consistent approach to interpreting the significance of effects to help the reader understand the decisions made by the assessor. The proposed definitions of significance are set out in **Appendix B**.

The general significance definitions outlined below apply:

**Major** - effects represent key factors in the decision-making process. They are generally associated with sites and features of international, national or regional importance. If negative such resources/features are generally those which cannot be replaced or relocated.

**Moderate** - effects are likely to be important considerations at a regional or district scale. If negative, they are likely to be of potential concern.

**Minor** - effects are not likely to be decision-making issues. Nevertheless, the cumulative effect of such issues may lead to an increase in the overall effects on a particular area or on a particular resource.

**Negligible** - effects which are not perceptible, being within normal bounds of variation or the margin of forecasting error.

The resulting significance of effects have been used in the selection of measures for inclusion in the Drought Plan and subsequent phasing of the selected measures. Where major/significant negative effects are predicted, broad measures envisaged to prevent, reduce and as fully as possible offset these effects on the environment (as a result of implementing the measure) will also be set out in the Environmental Report.

### 3.3.1 Secondary, Cumulative and Synergistic Environmental Effects

The SEA Regulations require that the cumulative effects of a plan or programme are taken into account. This includes the cumulative effects of the draft Drought Plan in combination with other plans and programmes and the cumulative effects of individual measures within the revised draft Drought Plan, which in combination represent the proposed approach.

The cumulative assessment has considered the impact of the proposed measures set out in the revised draft Drought Plan with those in other relevant plans and programmes identified in Section 2.2 and in particular cumulative impacts with other water company plans due to the synergies in the approach to managing water resources. The assessment of the cumulative effects of the revised draft Drought Plan is presented in Section 4.10.

### 3.3.2 Addressing proportionality

It is important to remember that drought measures are temporary in nature and the frequency and/or likelihood of implementation is less compared to WRMP options. Therefore, as per the UKWIR SEA guidance<sup>189</sup>, the level of detail used in the environmental assessment should be consistent with the strategic nature of SEA and the outline level of detail of the measures in the Drought Plan. All options; both supply-side measures and demand management measures will be assessed and to the same level of detail, in line with the SEA legislative requirements, national SEA guidance and the UKWIR SEA guidance.

### 3.3.3 Difficulties Encountered in Undertaking the Assessment

SEA requires the identification of any difficulties (such as technical deficiencies or lack of knowledge) encountered during the assessment process. The difficulties encountered in undertaking the SEA of the draft Drought Plan are summarised below:

- In undertaking this assessment, a balance was needed between the information provided as an overview of the whole area and the detail of a specific location. For example, the baseline section of this report considers strategic information; however, in order to assess some of the potential effects, it was necessary to be aware of the local characteristics. Throughout the whole process, it was necessary to balance the need for enough information to undertake a robust assessment, while retaining its strategic focus.

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<sup>189</sup> UKWIR (2021) Environmental Assessment Guidance for Water Resources Management Plans and Drought Plans (21/WR/02/15). Prepared by Ricardo.

- Only limited quantitative information is currently available for each measure. For the supply side measures, the yield of the measure has been provided by Welsh Water but other information such as the amount of materials required (and the carbon embodied within these) and operational power requirements and carbon emissions have not been quantified. Consequently, it has been necessary to estimate the likely resource use, energy consumption and carbon emissions for each measure. These qualitative estimates are based on the amount of additional infrastructure that Welsh Water consider will be required to implement the measure and the distance and topography over which water may need to be transferred. In this respect, the estimates of resource use, energy consumption and carbon emissions used in this assessment can only be considered indicative.
- The assessment presented in this Environmental Report draws heavily on information compiled by Welsh Water in the EARs prepared in support of the revised draft Drought Plan. The EARs describe the nature and extent of the baseline and drought year data that would be required in order to differentiate the impacts resulting solely from the implementation of a Drought Order or Drought Permit with those resulting naturally as a result of the drought itself. The EARs do not constitute an Environmental Report which would describe the impact assessment of the implementation of a proposed Drought Order/Drought Permit on the environment, although they do contain a review of the hydrological influence and significance of the option.
- For some measures, there remains uncertainty associated with the potential effects. This reflects the exact timing/duration of the option's implementation (even within the confirmed option period), flow conditions at the time of implementation and the presence and health of potentially affected species.
- Whilst the assessment of the cumulative effects of the implementation of the revised draft Drought Plan and other plans and programmes has been based on the most up to date information available at the time of writing, in many cases there is a lack of detailed information at this stage to make robust conclusions. This is a typical issue encountered during the assessment of drought plans.

## 4. ASSESSMENT OF THE DRAFT DROUGHT PLAN

### 4.1 INTRODUCTION

This section presents the findings of the assessment of the measures identified for the draft Drought Plan. The types of measures are broadly categorised as demand-side measures and supply-side measures; demand-side measures are designed to reduce the demand for water during drought; supply-side measures relate to actions that can temporarily increase the amount of water available for supply during drought.

DCWW has identified five demand-side measures and 20 supply-side options that require either a drought permit or drought order. The demand-side measures have been included in the draft Drought Plan; these measures are not geographically distinct and hence could be implemented in any of the WRZs in DCWW's area. The 20 supply-side measures are for seven WRZs that are potentially vulnerable to severe drought. These WRZs include: North Eryri/Ynys Mon (NEYM), Lleyn/Harlech/Barmouth, Clywd Coastal, SEWCUS, Tywi Gower, North Ceredigion and Pembrokeshire.

All of the draft Drought Plan measures have been assessed using the framework and approach set out in Section 3 to identify the likely significant environmental effects. Each measure has been assessed against the SEA objectives to identify its potential effects in both the short term (during construction) and medium/long term (during operation), considering the nature of the effect, its timing and geographic scale, the sensitivity of the human or environmental receptor that could be affected, and how long any effect might last. Where quantified information is available for the measure, the assessment has also been informed by reference to threshold values set out in the definitions of significance (see **Appendix D**).

The findings of the assessment are presented in Sections 4.2 to 4.15 below. A 'generic' approach has been taken to assessing the demand-side measures, reflecting the fact that they could be implemented in any of DCWW's 23 WRZs (**Section 4.2**), with the effects of the supply-side options for each of the seven WRZs presented in Sections 4.3 to 4.9. The cumulative, synergistic and secondary effects of the draft Drought Plan are considered in Section 4.10 with commentary then provided in **Section 4.11** on the performance of the draft Drought Plan against the well-being goals of the Well-being of Future Generations (Wales) Act 2015 and the objective for SMNR set out in the Environment (Wales) Act 2016. An overview of the mitigation and enhancement measures identified during the assessment is set out in Section 4.12.

### 4.2 DEMAND-SIDE MEASURES

Five demand-side measures have been included in the draft Drought Plan; these are listed in **Table 4-1**. A summary of the assessment of these options is presented in **Table 4-2** with commentary on the likely significant construction and operational effects provided below. Detailed assessments are contained in **Appendix E**.

The demand-side measures are not geographically distinct and hence could be implemented in any of DCWW's WRZs. In this section, the 'generic' assessment of each of the options is presented, along with discussion of how the findings might vary when the options are implemented in different WRZs.

Table 4-1: Draft Drought Plan Demand-Side Measures

| Ref | Option             | Yield (Ml/d) | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----|--------------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DM1 | Leakage Management | Various      | <p>This option involves increasing leakage reduction activity to reduce losses from the water supply network during a drought. Two types of leakage reduction would be undertaken:</p> <ul style="list-style-type: none"><li>Active Leakage Control – this would involve increasing the number of leakage technicians within each WRZ where this option is implemented. Increasing the number of leakage technicians would enable leaks to be located and fixed more promptly than is the case with fewer resources.</li></ul> |

| Ref | Option                                                        | Yield (Ml/d)                                                      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----|---------------------------------------------------------------|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     |                                                               |                                                                   | <ul style="list-style-type: none"> <li>Pressure Management – Pressure management involves proactively managing pressure within the distribution network to reduce leakage.</li> </ul> <p>The scale of the works depends on the size of the WRZ and the level of leakage within each zone. It is also dependent on the effectiveness of the works to locate and fix leakage.</p>                                                                                  |
| DM2 | Water Efficiency – customer messaging and device offering     | Various                                                           | <p>This option involves an increased level of water efficiency messaging to customers. This would involve the distribution of simple retrofit devices (e.g. cistern devices, showerheads etc.) and water efficiency information to household and businesses within the water resource zones targeted. The implementation of this option would be accompanied by a media campaign.</p> <p>No construction would arise from the implementation of this option.</p> |
| DM3 | Temporary Use Bans (TUBs)                                     | Various but estimated as 5% saving in demand                      | <p>This option involves the implementation of temporary use bans on customers. Temporary use bans include restrictions on the use of hosepipes. The implementation of this option would be accompanied by a media campaign.</p> <p>No construction would arise from the implementation of this option.</p>                                                                                                                                                       |
| DM4 | Non Essential Use Bans (NEUBs)                                | Various but estimated as 5% saving in demand (in addition to DM3) | <p>This option involves the implementation of on ordinary drought under on customers under the Drought Direction 2011. NEUBs include restrictions on, for example, the cleaning of non-domestic premises, filtering or maintaining ponds and non-domestic swimming pools and operating mechanical vehicle washers.</p> <p>No construction would arise from the implementation of this option.</p>                                                                |
| DM5 | Extreme measures e.g. pressure management and water rationing | Various                                                           | <p>This option would involve water rationing through the use of widespread enhanced pressure management or localised use of standpipes. Such measures would only be employed in very exceptional circumstances under emergency drought order.</p> <p>There would be minor construction requirements for this option including the manufacturing of standpipes and fitting them into the distribution network.</p>                                                |



Table 4-2: Demand-side Measures Assessment Summary (all WRZs)

| Ref | Option Name                                                   | Negative (N) or Positive (P) | SEA Topics and Objectives |     |                             |      |                                  |       |     |     |                            |                 |     |                                   |                              |
|-----|---------------------------------------------------------------|------------------------------|---------------------------|-----|-----------------------------|------|----------------------------------|-------|-----|-----|----------------------------|-----------------|-----|-----------------------------------|------------------------------|
|     |                                                               |                              | Biodiversity              |     | Population and Human Health |      | Material Assets and Resource Use | Water |     |     | Soil, Geology and Land Use | Air and Climate |     | Archaeology and Cultural Heritage | Landscape and Visual Amenity |
|     |                                                               |                              | 1.1                       | 1.2 | 2.1                         | 2.2  | 3.1                              | 4.1   | 4.2 | 4.3 | 5.1                        | 6.1             | 6.2 | 7.1                               | 8.1                          |
| DM1 | Leakage Management                                            | N                            | 0/?                       | N/A | 0                           | 0    | -/?                              | 0     | 0   | 0   | 0                          | -               | -/? | 0                                 | 0                            |
|     |                                                               | P                            | 0                         | N/A | +                           | 0    | +/?                              | +     | 0   | +   | 0/?                        | N/A             | +/? | N/A                               | N/A                          |
| DM2 | Water Efficiency – customer messaging and device offering     | N                            | N/A                       | N/A | 0                           | 0    | 0                                | 0     | 0   | 0   | 0                          | -               | 0   | N/A                               | N/A                          |
|     |                                                               | P                            | +                         | N/A | +                           | 0    | +/?                              | +     | +   | +   | 0                          | 0               | +/? | 0/?                               | 0                            |
| DM3 | Temporary Use Bans (TUBs)                                     | N                            | N/A                       | N/A | N/A                         | --/? | N/A                              | N/A   | N/A | N/A | N/A                        | N/A             | N/A | 0                                 | 0                            |
|     |                                                               | P                            | +                         | N/A | +                           | N/A  | +/?                              | +     | +   | +   | 0                          | N/A             | +   | 0                                 | 0/?                          |
| DM4 | Non Essential Use Bans (NEUBs)                                | N                            | N/A                       | N/A | N/A                         | ---  | N/A                              | N/A   | N/A | 0   | N/A                        | N/A             | N/A | 0                                 | 0                            |
|     |                                                               | P                            | +                         | N/A | ++                          | 0    | +/?                              | +     | +   | +   | 0                          | N/A             | +   | 0                                 | 0                            |
| DM5 | Extreme measures e.g. pressure management and water rationing | N                            | 0/?                       | N/A | ---                         | ---  | -/?                              | N/A   | N/A | N/A | 0                          | -               | -   | 0                                 | 0                            |
|     |                                                               | P                            | +                         | N/A | ++                          | N/A  | +/?                              | +/?   | +   | +   | 0                          | N/A             | +/? | 0                                 | 0                            |

#### 4.2.1 Construction Effects

No significant positive or minor positive effects, or significant negative effects, have been identified during the assessment of the demand-side options.

Of the five demand options, Option DM1 and DM5 require construction activities aimed at reducing leakage and installing standpipes, respectively. Addressing a leak typically involves excavation, repairs, and site restoration meanwhile installing standpipes will be on the existing distribution network. The work will occur on previously disturbed land, minimising significant effects on biodiversity (SEA Objective 1.1), assuming best practices are followed. A minor negative effect is anticipated from the changes in air quality due to additional vehicle emissions (SEA Objective 6.1). Temporary, localised effects on human health (SEA Objective 2.1) associated with vehicular emissions, increased noise and vibration from vehicle movements and repairs are expected to be limited and generally not significant. However, a minor negative effect is expected for material assets and resource use (SEA Objective 3.1) as the management and reduction of leakage and installation of standpipes will consume energy and materials, with effects likely more pronounced in areas where leakage reduction yields greater water savings for Option DM1 (Leakage Management).

Option DM1 (Leakage Management), Option DM2 (Water Efficiency – customer messaging and devices) and Option DM5 (Extreme measures) will involve vehicle movements during construction/implementation, leading to emissions that can affect air quality and contribute to carbon emissions. These emissions will result not only from vehicle use but also from the embodied carbon in the materials used. Consequently, minor negative effects have been identified for Air and Climate in relation to these options; specifically, SEA Objective 6.1 for DM2 (Water Efficiency) and SEA Objectives 6.1 and 6.2 for DM5 (Extreme measures) and DM1 (Leakage Management), the latter due to the carbon emissions associated with fixing leaks which are also likely to be greater in zones where leakage reduction yields the most water.

Options DM3 and DM4 would not involve construction activity per se and therefore effects associated with the implementation of these options have been assessed as neutral across all of the SEA objectives.

#### 4.2.2 Operational Effects

Positive effects have been identified across most of the SEA objectives for all options, with the exception of SEA objectives 1.2 (INNS), 5.1 (Soil, Geology, and Land Use), 7.1 (Archaeology and Cultural Heritage), and 8.1 (Landscape and Visual Amenity), where neutral impacts are anticipated.

During the operational phase, the demand-side measures are expected to yield benefits for water resources (SEA Objectives 4.1, 4.2 and 4.3). Specifically, Option DM1 aims to reduce leakage from the water supply network, while Options DM2 to DM4 focus on decreasing overall water demand, whilst DM5 involves extreme measures of water rationing only to be used in exceptional circumstances. These measures will protect water resources and ensure a secure supply of drinking water, during periods of drought.

Minor positive effects have been noted concerning resource use (SEA Objective 3.1) and climate change (SEA Objective 6.2). Although the exact impacts on resource use, energy consumption, and carbon emissions have not been quantified, the measures are likely to contribute to a more efficient use of water resources (in the case of DM2 Water Efficiency), as well as a minor reduction in energy use and emissions associated with water treatment and distribution and in the case of DM1-DM4 offers resilience and adaptation to climate change.

Moderate positive effects are anticipated on human health and well-being (SEA Objective 2.1) for Options DM4 (Non-Essential Use Bans) and DM5 (Extreme Measures such as pressure management and water rationing). These options are expected to yield substantial water savings, enhancing the security of water supply in the DCWW region, which is crucial for community resilience. However, it is important to note that while Options DM5 (Extreme Measures) may bring about positive outcomes, it could also lead to major negative impacts on health and well-being (SEA Objective 2.1). Disruptions in water supply and intermittent provision could create significant stress and anxiety, ultimately affecting human health and quality of life.

Furthermore, the implementation of Non-Essential Use Bans under Option DM4, and water rationing under Option DM5 (Extreme Measures) could significantly affect the economic and social needs of the local community (SEA Objective 2.2). Additionally, the implementation of Temporary Use Bans (TUBs) under Option DM3, is also assessed as a moderate negative uncertain effect. The uncertainty stems from the likely variation in compliance with voluntary water use reduction requests, which could lead to unpredictable water use.

Businesses reliant on water could face substantial challenges, including operational suspensions and potential financial losses, with broader implications on community well-being and economic stability.

#### **4.2.3 Further Consideration of Demand-side Measures**

The assessment examines the 'generic' effects of the revised draft Drought Plan's demand-side measures on the SEA objectives, without regard to specific Water Resource Zones (WRZs). It also explores how these generic assessments might vary across different WRZs.

Assessments related to the SEA objectives concerning population and human health, material assets and resource use, water, and air and climate are expected to be particularly sensitive to variations in the five demand-side options between different WRZs. In WRZs with potentially higher yields, the effectiveness of these options may surpass the significance thresholds defined for this assessment. For example, if an option yields more than 5Ml/d, the impact on SEA Objective 2.1 (health and well-being) would transition from a minor positive effect to a major/significant positive effect. Thus, significant positive effects may be recorded against these objectives. Overall, the effects on the SEA objectives will be proportional to the option's yield i.e. larger yields will lead to greater effects on the objectives.

### 4.3 NORTH ERYRI/YNYS MON (NEYM)

Three supply-side measures have been identified and assessed for the NEYM WRZ; these are listed in **Table 4-3**. A summary of the assessment of these options is presented in **Table 4-4** with commentary on the likely significant construction and operational effects provided below. Detailed assessments are contained at **Appendix E**.

Table 4-3: Draft Drought Plan Supply-side Measures: North Eryri Ynys Mon

| Ref    | Option       | Yield (ML/d) | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------|--------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8001-2 | Llyn Cwellyn | 2            | <p>Llyn Cwellyn is a reservoir in North Wales which supplies drinking water as part of the North Eryri Ynys Mon WRZ.</p> <p>The proposed scheme is to retain an abstraction rate of up to 12 ML/d from the lake between mid-July and December, inclusive, until the lake is at or below water level of 2.6 m below the lake's overflow level. That is, until the lake level is at or below 138.55 m AOD. The normal abstraction licence requires abstraction to reduce to not more than 10 ML/d when the lake is between 0.8 m and 2.6 m below the spillway crest level (lake top water level). The drought order may be applied for during the period mid-July to December, inclusive. If the water level falls below 138.55 m AOD, no abstraction will be permitted. The normal licensed abstraction will also apply if the water level is at or above 140.35 m AOD and the normal licensed compensation release requirements will apply throughout.</p> <p>The drought order may remain in force for a period of up to six months, and they can be extended for up to a further six months. However, the period of implementation for this drought order would only be mid July to December, as confirmed in with NRW and by water resources modelling carried out by DCWW.</p> <p>The option would require a small amount of additional infrastructure. Abstraction from Llyn Cwellyn that is more than 2.0m below the spillway is below the gravity-draw off and pumping is required to transfer water from the lake to the existing intakes in the dam wall, and also to pump water from the lake into the Afon Gwyrfai (for compensation releases). This is expected to be a few tens of metres of pipe from the lake to the intakes and spillway, with associated pumps and a power supply (assumed to be from generators). Additionally, if the water level falls to 1.8m (139.35 m.a.O.D.) below spillway crest level, an additional pump to aid eel passage will be installed.</p> |
| 8001-7 | Llyn Cwellyn | 2            | <p>The proposed scheme is to retain an abstraction rate of up to 12 ML/d from the lake between September to December, inclusive, until the lake is at or below water level of 3.6 m below the lake's overflow level. That is, until the lake level is at or below 137.55 m AOD. The normal abstraction licence requires abstraction to reduce to not more than 10 ML/d when the reservoir is between 0.8 m and 2.6 m below the spillway crest level (reservoir top water level). If the water level falls below 137.55 m AOD, no abstraction will be permitted. The normal licensed abstraction will apply if the water level is at or above 140.35 m AOD, and the normal licensed compensation release requirements will apply throughout.</p> <p>The option would require a small amount of additional infrastructure. Abstraction from Llyn Cwellyn that is more than 2.0m below the</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

| Ref    | Option         | Yield (Ml/d) | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------|----------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        |                |              | spillway is below the gravity-draw off and pumping is required to transfer water from the lake to the existing intakes in the dam wall, and also to pump water from the lake into the Afon Gwyrfa (for compensation releases). This is expected to be a few tens of metres of pipe from the lake to the intakes and spillway, with associated pumps and a power supply (assumed to be from generators). If the water level falls to 1.8m (139.35 m AOD) below spillway crest level, an additional pump to aid eel passage will be installed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 8001-4 | Ffynnon Llugwy | 0.90         | <p>Ffynnon Llugwy is a reservoir in North Wales which supplies drinking water to Bangor and Eastern Anglesey, as part of the North Eryri Ynys Môn WRZ. It lies on the upper Afon Llugwy, a tributary of the River Conwy, in the county of Gwynedd between Carnedd Llewelyn and Clyn Cowlyd in the northern part of Eryri National Park.</p> <p>The drought permit proposed to reduce the compensation flow normally required from the reservoir by up to 0.9Ml/d (up to 20%), from 4.5Ml/d to 3.6Ml/d, to conserve reservoir storage. If granted, this will ensure it can continue to support provision of essential public water supplies through the drought, and to improve the prospect of reservoir recovery over the winter. The period of implementation for this drought permit would be July to December, inclusive. The zone of influence for the drought permit includes the downstream Afon Llugwy as far as the Nant Gwyrdd confluence at Capel Curig. The effects of the drought permit flow reduction at Capel Curig have been assessed as negligible in both the winter and the summer.</p> <p>When a drought permit is in place, monitoring of Ffynnon Llugwy Reservoir level and modelled prediction of its refill may provide confidence that the drought risk has passed. Operation could then revert to the normal licensed compensation release before the end of the permit period.</p> |

Table 4-4: Supply-side Measures Assessment Summary: North Eryri Ynys Mon

| Ref    | Option Name    | Negative (N) or Positive (P) | SEA Topics and Objectives |     |                             |     |                                  |       |     |     |                            |                 |     |                                   |                              |
|--------|----------------|------------------------------|---------------------------|-----|-----------------------------|-----|----------------------------------|-------|-----|-----|----------------------------|-----------------|-----|-----------------------------------|------------------------------|
|        |                |                              | Biodiversity              |     | Population and Human Health |     | Material Assets and Resource Use | Water |     |     | Soil, Geology and Land Use | Air and Climate |     | Archaeology and Cultural Heritage | Landscape and Visual Amenity |
|        |                |                              | 1.1                       | 1.2 | 2.1                         | 2.2 | 3.1                              | 4.1   | 4.2 | 4.3 | 5.1                        | 6.1             | 6.2 | 7.1                               | 8.1                          |
| 8001-2 | Llyn Cwellyn   | N                            | -                         | 0   | 0                           | -   | -                                | 0     | 0   | N/A | 0                          | -               | -   | 0                                 | -                            |
|        |                | P                            | 0                         | N/A | ++                          | ++  | N/A                              | N/A   | N/A | +   | N/A                        | N/A             | +   | N/A                               | N/A                          |
| 8001-7 | Llyn Cwellyn   | N                            | -                         | 0   | 0                           | -   | -                                | 0     | 0   | N/A | 0                          | -               | -   | 0                                 | -                            |
|        |                | P                            | 0                         | N/A | ++                          | ++  | N/A                              | N/A   | N/A | +   | N/A                        | N/A             | +   | N/A                               | N/A                          |
| 8001-4 | Ffynnon Llugwy | N                            | --/?                      | N/A | 0                           | 0   | 0                                | --/?  | --  | N/A | 0                          | 0               | 0   | 0                                 | -                            |
|        |                | P                            | 0                         | N/A | +                           | +   | +                                | N/A   | +   | +   | N/A                        | N/A             | +   | 0                                 | +                            |



### 4.3.1 Construction Effects

No significant positive or minor positive construction effects, nor significant negative effects, have been identified during the assessment of the options in the NEYM WRZ.

Options 8001-2 and 8001-7 (both Llyn Cwellyn) will involve minor construction activities, including the installation of short pipeline sections (only a few tens of metres in length) and associated pumping infrastructure. Both options have been assessed as having a minor negative effect on biodiversity (SEA Objective 1) due to potential effects on habitat connectivity and the disturbance of species within the Afon Gwyrfa a Llyn Cwellyn SAC/SSSI from temporary site works.

Minor negative impacts have also been identified for Air Quality and Climate (SEA Objectives 6.1 and 6.2), primarily due to the transportation and use of plant machinery and materials (e.g., pumps, pipes), which will require vehicle movements and fuel consumption, resulting in air emissions. Additionally, construction activities such as excavations may generate temporary dust, which could cause nuisance to nearby recreational and tourism receptors.

In terms of Landscape and Visual Amenity (SEA Objective 8.1), minor negative effects have been identified due to the potential for construction activities to affect the special qualities of Eryri National Park. However, given the small scale and localised nature of the required works, such effects are not expected to be substantial. Reflecting the limited scale and nature of the construction activities required, the impacts on the remaining SEA objectives have been assessed as neutral for both Options 8001-2 and 8001-7.

Option 8001-4 Ffynnon Llugwy, which does not involve any construction activity, has been assessed as neutral across all SEA objectives, with no anticipated effects.

### 4.3.2 Operational Effects

Positive effects have been identified across all options within the NEYM WRZ in relation to Population and Human Health (SEA Objectives 2.1 and 2.2), Water (SEA Objective 4.3), and Air and Climate (SEA Objective 6.2).

For Options 8001-2 and 8001-7, moderate positive impacts have been identified for Population and Human Health (SEA Objectives 2.1 and 2.2), due to their moderate yield of 2 Ml/d, which will help ensure a reliable water supply during drought conditions. In contrast, Option 8001-4, with a lower yield of 0.9 Ml/d, has been assessed as having a minor positive effect on these objectives.

All options demonstrate minor positive effects on Water (SEA Objective 4.3) and Air and Climate (SEA Objective 6.2), as they contribute additional water resources to support public water supplies and enhance capacity to manage drought conditions and adapt to climate change.

Option 8001-4 makes use of existing infrastructure, resulting in a minor positive effect on Materials and Resource Use (SEA Objective 3.1). Additionally, this option has been assessed as having minor positive impacts on Water (SEA Objective 4.2) and Landscape and Visual Amenity (SEA Objective 8.1), due to increased storage capacity and reduced shoreline exposure.

Option 8001-4 has been assessed as having moderate negative effects on biodiversity (SEA Objective 1.1) and Water (SEA Objective 4.2). A moderate negative effect has been identified on biodiversity (SEA Objective 1.1), primarily due to the potential for effects on fish species and aquatic habitats associated with the Eryri SSSI. However, the likelihood and exact magnitude of this effect remain uncertain, as it depends on factors such as the timing and duration of implementation, existing flow conditions, and the fish species affected. The EAR also notes the lack of reliable data in this regard, contributing to the uncertainty of the impact.

Moderate negative effects have been identified for Water (SEA Objective 4.2) for Option 8001-4 due to changes in the flow regime, flow hydraulics, connectivity, and variability in usable habitat. These effects are linked to increased marginal exposure and habitat maintenance resulting from reduced flow levels. Furthermore, minor negative effects on Water Quality (SEA Objective 4.1) have been identified, stemming from potential water quality changes. However, there is some uncertainty regarding the extent of these effects due to the lack of sufficient water quality monitoring data at the time of assessment.

There is also the potential for the lake level to decrease at a faster rate and to lower levels than it would without the implementation of Options 8001-2 and 8001-7, leading to increased shoreline exposure and affecting recreational access. However, because these impacts would be temporary, the effects on Population and

Human Health (SEA Objective 2.2) are expected to be minor negative, particularly given the location within the National Park.

For Options 8001-2 and 8001-7, when abstraction levels drop below 2.0m, pumping will be required to maintain compensation flows and support water supply. This process will lead to minor negative effects on Materials and Resource Use (SEA Objective 3.1) and Air and Climate (SEA Objectives 6.1 and 6.2) due to air emissions and power consumption from diesel generators.

All options fall within the Eryri National Park and have been assessed as having minor negative effects on Landscape and Visual Amenity (SEA Objective 8.1). Options 8001-2 and 8001-7 would require new above-ground infrastructure, including pipelines along the existing dam wall, as well as pumps and generators. Option 8001-4 would alter the landscape due to reduced compensation flows, potentially affecting the visual amenity of the area.

## 4.4 LLEYN/ HARLECH/ BARMOUTH

Three supply-side measures have been identified and assessed for the Llyn/ Harlech/ Barmouth WRZ; this option is described in **Table 4-5**. A summary of the assessment of these options is presented in **Table 4-6** with commentary on the likely significant construction and operational effects provided below. Detailed assessments are contained at **Appendix E**.

Table 4-6Table 4-5: Draft Drought Plan Supply-side Measures: Barmouth

| Ref         | Option              | Yield (MI/d) | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------|---------------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8033-34 - 2 | Llyn Bodlyn         | 0.44         | <p>DCWW hold a licence to abstract water at Llyn Bodlyn, which includes the following conditions:</p> <ul style="list-style-type: none"> <li>- 980 million litres (MI) authorised to be abstracted per annum;</li> <li>- an abstraction rate not exceeding 3.0MI/d, with provision to increase to 3.5MI/d on any 14 days during the year; and</li> <li>- discharge of compensation water of 2.18 MI/d to the Afon Ysgethin (a requirement of the Barmouth Local Board Act 1891).</li> </ul> <p>The abstraction for potable supply is made directly from the reservoir and piped 5km by gravity to the local water treatment works (WTW) at Eithyn Fynydd for treatment and distribution. Abstraction under gravity can be achieved to a maximum drawdown level of 3.2m below reservoir spillway crest level. Compensation releases are controlled through a notched weir system. At high reservoir levels (above the spillway crest level) excess water spills from the reservoir to the Afon Ysgethin down a 3m wide spillway channel.</p> <p>The drought permit proposes a reduction in the compensation release from Llyn Bodlyn to the Afon Ysgethin by 20%, that is, to reduce the compensation release by 0.44 MI/d, reducing it from the licensed requirement of not less than 2.18 MI/d, to not less than 1.74 MI/d. This will conserve reservoir storage and help ensure there is enough resource to maintain essential public water supplies throughout a drought and help improve the prospect of reservoir recovery over the winter. The option will potentially influence the downstream Afon Ysgethin up to the tidal limit.</p> <p>Drought permits can be granted for a period of up to six months, and they can be extended for up to a further six months. However, the period of implementation for this drought permit would only be June to November, inclusive.</p> <p>When a drought order is in place, scenario modelling of minimum storage and refill probability will continue. If there is a meaningful improvement in the minimum storage from the scenario modelling, and consequently a reduction in the risk of entering Emergency Storage, operation could revert to the normal licensed compensation release before the end of the drought order period.</p> |
| 8033-34-1   | Llyn Cwmystadrlllyn | 0.6          | <p>The compensation flow release of 3.01 MI/d from Llyn Cwmystadrlllyn helps to sustain flow in the downstream Afon Henwy and Afon Dwyfor all year round. Additionally, regulation releases are made concurrently when abstraction at the Garndolbenmaen river intake is taking place and river flows are below the hands-off flow requirement, together with any fisheries releases required. These controlled releases from Llyn Cwmystadrlllyn represent a significant proportion of the flow in the downstream river system during drought and periods without significant rainfall across the catchment.</p> <p>The proposed drought permit is to reduce the compensation flow normally required from the reservoir by 20% (0.6MI/d) in order to conserve reservoir storage and help ensure there is enough resource to maintain essential public water supplies throughout a severe drought without the need for more extreme customer side</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| Ref       | Option             | Yield (Ml/d) | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------|--------------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|           |                    |              | measures. This will reduce the licensed requirement of not less than 3.01 Ml/d, to not less than 2.41 Ml/d. The scheme will also help improve the prospect of reservoir recovery over the winter.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 8033-34-4 | Llyn Cwmystradllyn | n/a          | <p>The proposed scheme is to retain freshet reservation in the reservoir, for use to support provision of essential public water supplies through the drought. The drought permit would enable 40% (64Ml) of the freshet allocation (159.11 Ml) to be reallocated for public water supply. The permit could be applied for during the period August to October, inclusive, and no additional 'conditional allocation' to freshet use will be made.</p> <p>When a drought permit is in place, monitoring of Llyn Cwmystradllyn Reservoir level and modelled prediction of its refill may provide confidence that the drought risk has passed. Operation could then revert to the normal licensed freshet allocation before the end of the permit period.</p> |

Table 4-6: Supply-side Measures Assessment Summary: Llyn Harlech/Barmouth

| Ref       | Option Name         | Negative (N) or Positive (P) | SEA Topics and Objectives |                             |                                  |       |                            |                 |                                   |                              |     |     |     |     |     |
|-----------|---------------------|------------------------------|---------------------------|-----------------------------|----------------------------------|-------|----------------------------|-----------------|-----------------------------------|------------------------------|-----|-----|-----|-----|-----|
|           |                     |                              | Biodiversity              | Population and Human Health | Material Assets and Resource Use | Water | Soil, Geology and Land Use | Air and Climate | Archaeology and Cultural Heritage | Landscape and Visual Amenity |     |     |     |     |     |
|           |                     |                              | 1.1                       | 1.2                         | 2.1                              | 2.2   | 3.1                        | 4.1             | 4.2                               | 4.3                          | 5.1 | 6.1 | 6.2 | 7.1 | 8.1 |
| 8033-34-2 | Llyn Bodlyn         | N                            | --/?                      | N/A                         | 0                                | 0     | N/A                        | 0/?             | --/?                              | N/A                          | 0   | 0   | 0   | 0   | -   |
|           |                     | P                            | N/A                       | N/A                         | +                                | +     | +                          | N/A             | +                                 | +                            | N/A | N/A | +   | N/A | 0   |
| 8033-34-1 | Llyn Cwmystadrlllyn | N                            | --/?                      | N/A                         | 0                                | N/A   | N/A                        | 0/?             | --/?                              | N/A                          | 0   | 0   | 0   | 0   | -   |
|           |                     | P                            | N/A                       | N/A                         | +                                | +     | +                          | N/A             | +                                 | +                            | N/A | N/A | +   | N/A | 0   |
| 8033-34-4 | Llyn Cwmystadrlllyn | N                            | 0/?                       | N/A                         | 0                                | N/A   | 0                          | 0               | 0                                 | N/A                          | 0   | 0   | 0/? | 0   | 0   |
|           |                     | P                            | +/?                       | N/A                         | +                                | +     | +                          | +               | +                                 | +                            | N/A | N/A | +   | N/A | +   |



#### 4.4.1 Construction Effects

None of the options in the Lleyn/ Harlech/ Barmouth WRZ would require any new infrastructure or involve construction works and in consequence, construction effects have been assessed as neutral across all of the SEA objectives.

#### 4.4.2 Operational Effects

No significant positive or negative effects have been identified during the assessment.

Minor positive effects have been identified across all options within the Lleyn/Harlech/Barmouth WRZ in relation to Population and Human Health (SEA Objectives 2.1 and 2.2), Material Assets and Resource Use (SEA Objective 3.1), Water (SEA Objectives 4.2 and 4.3), and Air and Climate (SEA Objective 6.2). These effects are associated with the minor yields of the options (< 2 Ml/d), which will help ensure continuity of water supply during droughts, supporting public health and promoting climate change resilience. The marginal increase in water levels and storage, compared to the baseline without the drought permit, will enhance water storage, reduce shoreline exposure, and conserve water for public supply.

Option 8033-34-4 Llyn Cwmystradllyn has been assessed as having a minor positive effect on Biodiversity (SEA Objective 1.1), Water (SEA Objective 4.1), and Landscape (SEA Objective 8.1). The 64 Ml of additional storage in the reservoir is expected to increase water levels, surface area, and wetted perimeter, potentially improving reservoir water quality, including the quality of the released compensation water.

Option 8033-34-2 Llyn Bodlyn has been assessed as having a moderate negative uncertain effect on Biodiversity (SEA Objective 1.1) and Water (SEA Objective 4.2). This is due to the potential for reduced compensation flows to alter flow hydraulics and the variability of usable habitats in the Afon Ysgethin. These changes may have negative impacts on aquatic species, particularly Atlantic salmon and brown trout, with lesser impacts on eels, macroinvertebrates, and macrophytes. However, the uncertainty surrounding these impacts arises from the limitations in the available data.

Option 8033-34-1 Llyn Cwmystradllyn has also been assessed as having a moderate negative uncertain effect on Biodiversity (SEA Objective 1.1) and Water (SEA Objective 4.2). This is due to the potential for up to 20% reduction in flows in the Afon Henwy, which could alter flow hydraulics and the variability of usable habitats. These changes may have moderate negative impacts on aquatic species, particularly Atlantic salmon and brown/sea trout, as well as notable *Ranunculus* communities and bryophytes such as *Porella pinnata*. Uncertainty in the assessment arises from the medium confidence level in fisheries data due to survey age and frequency limitations.

Both Options 8033-34 - 2 and 8033-34-1 have been assessed as having a minor negative effect on landscape (SEA Objective 8.1) as reduced flows in Afon Henwy and Afon Ysgethin could, albeit temporarily, affect the landscape character of Eryri National Park.

## 4.5 CLWYD COASTAL

Four supply-side measures have been identified and assessed for the Clwyd WRZ; this option is described in **Table 4-7**. A summary of the assessment of these options is presented in **Table 4-8** with commentary on the likely significant construction and operational effects provided below. Detailed assessments are contained at **Appendix E**.

Table 4-7: Draft Drought Plan Supply-side Measures: Clwyd Coastal

| Ref    | Option                 | Yield (Ml/d) | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------|------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8012-2 | Aled Isaf              | 2            | <p>The proposed scheme is to reduce the regulation release required from the Aled Isaf Reservoir to conserve the total reservoir storage and prolong its capacity to provide regulation support to the Afon Aled and the abstraction at Bryn Aled.</p> <p>Reduce the required regulation release from Aled Isaf Reservoir by 2 Ml/d whenever abstraction is taking place at Bryn Aled intake on the Afon Aled and the residual flow there is less than 29.5 Ml/d. The drought permit would be implemented during the period mid-September to mid-January, inclusive.</p> <p>The period mid-October to mid-November is excluded from the assessment, as a potential mitigation measure with respect to migratory fish in the river.</p>                                                                                                                                                                                                                                                                                 |
| 8012-4 | Afon Aled              | 10.2         | <p>The proposed drought permit will seek a temporary increase to the annual abstraction licence limits across the three sources in response to higher levels of abstraction necessary to meet higher than usual demand during drought conditions. It will help ensure there is enough resource to maintain essential public water supplies throughout a severe drought without the need for more extreme customer side measures. A drought permit application will seek the following changes to the annual limits of the abstraction licences for the 12-month period 1st April to 31st March in which the drought permit application is made:</p> <ul style="list-style-type: none"> <li>• 20% increase in the annual abstraction allowed from Plas Uchaf and Dolwen Reservoirs, increasing the annual limit by 1,000 Ml, from 5,000 Ml/yr to 6,000 Ml/yr</li> <li>• 20% increase the annual abstraction allowed at Bryn Aled, increasing the annual limit by 863.6 Ml, from 4,318 Ml/yr to 5,181.6 Ml/yr</li> </ul> |
| 8012-6 | Aled Isaf to Llyn Aled |              | <p>The proposed scheme is to allow water to be transferred from Aled Isaf Reservoir to Llyn Aled Reservoir at a rate of up to 19.5Ml/d, via temporary pipeline and pumps.</p> <p>The permit, if required, is expected to be required over the period mid November to March, inclusive. It should be noted that this drought permit overlaps with the Llyn Aled dead storage utilisation option 8012-1 for two weeks between mid-November and the beginning of December. Therefore, depending on the storage situation of both reservoirs in November, an assessment of which drought option is best to use should be made. Both drought options are exclusive and should not run concurrently.</p> <p>The scheme will require the construction of temporary abstraction arrangement in Aled Isaf Reservoir, a pipeline to Llyn Aled Reservoir, pumping arrangement, and a discharge arrangement in</p>                                                                                                                 |

| Ref    | Option    | Yield (MI/d) | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------|-----------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        |           |              | Llyn Aled Reservoir. These works will be designed in advance of the need for the permit and further environmental assessment for the construction, operation and decommissioning of the pumps and pipeline will be completed at the time of application for a drought permit. These works are not considered in the EAR for this option but have been considered at high level in the SEA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 8012-1 | Llyn Aled | 20           | <p>The proposed drought permit is to use some of Llyn Aled's dead storage, to conserve the downstream Aled Isaf Reservoir storage at not less than 20% capacity and prolong its function to provide regulation support to the Afon Aled and the abstraction at Bryn Aled. It will help ensure there is enough resource to maintain essential public water supplies throughout a severe drought without the need for more extreme customer side measures. The scheme will also help improve the prospect of reservoir recovery over the winter. The permit could be applied for during the period September to December, inclusive. The pumping rate would not be more than 20MI/d and water would be discharged to the Afon Aled at Llyn Aled dam, and so follow the normal release route from Llyn Aled and Aled Isaf.</p> <p>The scheme will require the construction of temporary pumping arrangement in Llyn Aled, and a discharge arrangement to the Afon Aled. It is expected the discharge location should align as closely as possible to the normal means of making release from Llyn Aled to the Afon Aled. The temporary works will be designed in advance of the need for the permit and further environmental assessment for the construction, operation and decommissioning of the pumps and any associated pipeline will be completed at the time of application for a drought permit. These works are not considered in the drought permit EAR but have been assessed in the SEA at a high level.</p> |

Table 4-8: Supply-side Measures Assessment Summary: Clwyd Coastal

| Ref    | Option Name                   |                              | SEA Topics and Objectives |     |                             |     |                                  |       |      |     |                            |                 |       |                                   |                              |
|--------|-------------------------------|------------------------------|---------------------------|-----|-----------------------------|-----|----------------------------------|-------|------|-----|----------------------------|-----------------|-------|-----------------------------------|------------------------------|
|        |                               | Negative (N) or Positive (P) | Biodiversity              |     | Population and Human Health |     | Material Assets and Resource Use | Water |      |     | Soil, Geology and Land Use | Air and Climate |       | Archaeology and Cultural Heritage | Landscape and Visual Amenity |
|        |                               |                              |                           |     |                             |     |                                  |       |      |     |                            |                 |       |                                   |                              |
|        |                               |                              | 1.1                       | 1.2 | 2.1                         | 2.2 | 3.1                              | 4.1   | 4.2  | 4.3 | 5.1                        | 6.1             | 6.2   | 7.1                               | 8.1                          |
| 8012-2 | 8012-2 Aled Isaf              | N                            | --                        | N/A | 0                           | -/? | N/A                              | 0/?   | --/? | N/A | 0                          | 0               | 0     | 0                                 | 0                            |
|        |                               | P                            | N/A                       | N/A | +                           | +   | +                                | N/A   | +    | +   | N/A                        | N/A             | +     | N/A                               | 0                            |
| 8012-4 | 8012-4 Afon Aled              | N                            | 0                         | N/A | 0                           | 0   | -                                | 0     | 0    | N/A | 0                          | 0               | --/?  | 0                                 | 0                            |
|        |                               | P                            | +                         | N/A | +++                         | +++ | +                                | N/A   | +    | ++  | N/A                        | N/A             | +     | N/A                               | 0                            |
| 8012-6 | 8012-6 Aled Isaf to Llyn Aled | N                            | -                         | 0   | 0                           | 0   | ---/?                            | 0     | 0    | N/A | 0                          | -/?             | ---/? | N/A                               | -/?                          |
|        |                               | P                            | N/A                       | N/A | 0                           | 0   | N/A                              | N/A   | +    | +   | 0                          | N/A             | N/A   | N/A                               | N/A                          |
| 8012-1 | 8012-1 Llyn Aled              | N                            | -                         | 0   | 0                           | 0   | -/?                              | 0     | 0    | N/A | 0                          | -/?             | -/?   | N/A                               | -/?                          |
|        |                               | P                            | N/A                       | N/A | +++                         | +++ | N/A                              | N/A   | +    | +++ | 0                          | N/A             | N/A   | N/A                               | N/A                          |

#### 4.5.1 Construction Effects

No positive effects have been identified during the assessment during the construction period.

Options 8012-6 Aled Isaf to Llyn Aled and 8012-1 Llyn Aled will involve minor construction activities, including the installation of pipelines, pumping, and discharge infrastructure. These activities are expected to result in minor negative effects across several SEA objectives, including Biodiversity (SEA Objective 1.1), Material Assets and Resource Use (SEA Objective 3.1), Air and Climate (SEA Objectives 6.1 and 6.2), and Landscape and Visual Amenity (SEA Objective 8.1).

The potential effect on Biodiversity (SEA Objective 1.1) is related to sensitive features within the Mynydd Hiraethog SSSI, where construction activities may disrupt local habitats. The movement and use of plant and materials, such as pumps and approximately 1 km of pipeline, will lead to vehicle movements that result in carbon emissions and a temporary decline in local air quality. In addition, carbon embodied within the infrastructure and plant will contribute to these minor negative effects on Material Assets and Resource Use (SEA Objective 3.1) and Air and Climate (SEA Objectives 6.1 and 6.2). The temporary installation of pumping infrastructure next to the Aled Isaf shoreline may cause visual disruption due to lorry traffic and construction works, leading to a minor negative effect on Landscape and Visual Amenity (SEA Objective 8.1). However, the extent of these effects remains uncertain, as the number of vehicles and the exact location of the infrastructure have not yet been determined.

For the remaining measures within the WRZ, which do not involve construction, the effects have been assessed as neutral across all SEA objectives.

#### 4.5.2 Operational Effects

Significant positive effects have been identified for Options 8012-1 Llyn Aled and 8012-4 Afon Aled in relation to Population and Human Health (SEA Objectives 2.1 and 2.2) due to their major yields of 20 Ml/d and 10.2 Ml/d, which will ensure the continuity of water supply during periods of drought. As a result, these options have been assessed with major to moderate positive effects on Water (SEA Objective 4.3), as they will help maintain public water supplies. Option 8012-2, while also beneficial, has a smaller yield of 2 Ml/d and therefore results in minor positive effects for these objectives.

Option 8012-4 Afon Aled may lead to minor positive effects on water levels in the Dolwen and Plas Uchaf Reservoirs, as they could retain more water under the drought permit than under normal drought conditions. This could have a minor positive effect on Biodiversity (SEA Objective 1.1).

Options 8012-2 Aled Isaf and 8012-4 will utilise existing abstraction sources and infrastructure, leading to minor positive effects on Material Assets and Resource Use (SEA Objective 3.1) and Air and Climate (SEA Objective 6.2). These options will provide DCWW with enhanced capacity to manage drought conditions, supporting climate change adaptation.

In contrast, Option 8012-6 Aled Isaf to Llyn Aled has been assessed with major negative effects on Material Assets and Resource Use (SEA Objective 3.1) and Air and Climate (SEA Objective 6.2) due to the energy required to pump water against a 1 km gradient. Options 8012-4 and 8012-1 may have minor negative effects on Material Assets and Resource Use (SEA Objective 3.1) due to increased energy demands for pumping, treatment, and distribution. For Option 8012-4, these energy requirements, along with anticipated higher emissions of greenhouse gases, result in a moderate negative effect on Air and Climate (SEA Objective 6.2). There is some uncertainty regarding the exact energy needed for pumping, which may influence the overall effect.

Options 8012-6 and 8012-1 would lead to minor negative uncertain effects on Landscape and Visual Amenity (SEA Objective 8.1) due to additional pumping infrastructure which will cause visual intrusion. The uncertainty arises because the exact location of the infrastructure associated with these options is unknown.

## 4.6 SEWCUS

A total of four supply-side measures have been identified and assessed for the SEWCUS WRZ; these are listed in **Table 4-9**. A summary of the assessment of these options is presented in **Table 4-10** with commentary on the likely significant construction and operational effects provided below. Detailed assessments are contained at **Appendix E**.

Table 4-9: Draft Drought Plan Supply-side Measures: SEWCUS

| Ref    | Option        | Yield (MI/d) | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------|---------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8121-1 | Llwyn-on      | 3.62         | <p>Llwyn-on Reservoir sits as the furthest downstream of the three Taf Fawr Reservoirs, with Cantref and Beacons Reservoirs feeding into Llwyn-onn from upstream. Together, they form a major water supply for the SEWCUS WRZ, providing over 34,000 MI potable supply per year. The potable supply is transferred, via gravity alone, directly to Llwyn-onn WTW. The reservoirs release into the Afon Taf Fawr, flowing into the River Taff after its confluence with Afon Taf Fechan. DCWW also hold a second abstraction licence for Llwyn-on Reservoir, to release a further 18.2 MI/day into the Afon Taf Fawr for non-consumptive use in the fisheries immediately downstream of the reservoir impoundment. The non-consumptiveness also means it effectively acts as a compensation release for the Afon Fawr and River Taff.</p> <p>The drought option proposed to reduce the compensation flow normally required from Llwyn-on Reservoir to conserve reservoir storage by 20% (3.62 MI/d) between July and December inclusive. Reducing it from the normal compensation requirement of 18.18 MI/d to not less than 14.56 MI/d.</p> |
| 8121-2 | Pontsticill   | 3.8          | <p>The drought permit involves a proposed reduction in the statutory compensation release from Pontsticill Reservoir to the Taf Fechan by 20% (3.8MI/d), from 19.1MI/d to 15.3MI/d. This will conserve the longevity of reservoir storage for use in direct supply during a drought and improve the probability of reservoir winter refill. The proposed scheme is to reduce the compensation flow normally required from the reservoir in order to conserve reservoir storage and help ensure there is enough resource to maintain essential public water supplies throughout a severe drought without the need for more extreme customer side measures. The scheme will also help improve the prospect of reservoir recovery over the winter. The drought permit would only be applied for during the period July to December, inclusive.</p>                                                                                                                                                                                                                                                                                             |
| 8121-3 | Shon Sheffrey | 0.4          | <p>The drought permit proposes to reduce the compensation release normally required from Shon Sheffrey Reservoir by 20%. That is, reduce the compensation release by 0.4MI/d from 2MI/d to not less than 1.6MI/d. The drought permit may be applied for during the period July to December, inclusive. The proposed scheme is to reduce the compensation flow normally required from the reservoir in order to conserve reservoir storage and help ensure there is enough resource to maintain essential public water supplies throughout a severe drought without the need for more extreme customer side measures. The scheme will also help improve the prospect of reservoir recovery over the winter. The scheme will require a drought permit to be granted to allow it to be implemented.</p>                                                                                                                                                                                                                                                                                                                                        |



| Ref    | Option           | Yield (Ml/d) | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------|------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8121-4 | Grwyne Reservoir | 2            | <p>Increase the compensation release normally required from Grwyne Reservoir by 59% (2Ml/d) from 3.41Ml/d to 5.41Ml/d from August to October inclusive. This will help to support abstraction at Prioress Mills or Llantrisant.</p> <p>The proposed scheme is to re-commence releases from the Grwyne Fawr Reservoir of up to 5Ml/d, to support downstream abstractions at the Prioress Mill or Llantrisant Pumping Stations, downstream on the River Usk, to support provision of essential public water supplies through the drought (subject to 48 hours delay between commencement of the release and its abstraction downstream). The scheme will increase river flow to Prioress Mill Pumping Station and allow abstraction that would otherwise be restricted by licence conditions during periods of low river flow. The drought permit may be implemented during the period August to October, inclusive.</p> |

Table 4-10: Supply-side Measures Assessment Summary: SEWCUS

| Ref    | Option Name      | Negative (N) or Positive (P) | SEA Topics and Objectives |     |                             |     |                                  |       |     |     |                            |                 |     |                                   |                              |
|--------|------------------|------------------------------|---------------------------|-----|-----------------------------|-----|----------------------------------|-------|-----|-----|----------------------------|-----------------|-----|-----------------------------------|------------------------------|
|        |                  |                              | Biodiversity              |     | Population and Human Health |     | Material Assets and Resource Use | Water |     |     | Soil, Geology and Land Use | Air and Climate |     | Archaeology and Cultural Heritage | Landscape and Visual Amenity |
|        |                  |                              | 1.1                       | 1.2 | 2.1                         | 2.2 | 3.1                              | 4.1   | 4.2 | 4.3 | 5.1                        | 6.1             | 6.2 | 7.1                               | 8.1                          |
| 8121-1 | Llwyn-on         | N                            | ---/?                     | N/A | 0                           | 0   | 0                                | -/?   | --  | N/A | 0                          | 0               | 0   | 0                                 | -                            |
|        |                  | P                            | N/A                       | N/A | ++                          | ++  | +                                | N/A   | +   | ++  | N/A                        | N/A             | +   | 0                                 | 0                            |
| 8121-2 | Pontsticill      | N                            | ---/?                     | N/A | 0                           | 0   | 0                                | -/?   | --  | N/A | 0                          | 0               | 0   | -/?                               | -                            |
|        |                  | P                            | N/A                       | N/A | ++                          | ++  | +                                | N/A   | +   | ++  | N/A                        | N/A             | +   | 0                                 | 0                            |
| 8121-3 | Shon Sheffrey    | N                            | -/?                       | N/A | 0                           | 0   | 0                                | -     | --  | N/A | 0                          | 0               | 0   | 0                                 | 0                            |
|        |                  | P                            | N/A                       | N/A | +                           | +   | +                                | N/A   | +   | ++  | 0                          | N/A             | +   | N/A                               | 0                            |
| 8121-4 | Grwyne Reservoir | N                            | 0                         | 0   | N/A                         | N/A | 0                                | 0     | -   | N/A | 0                          | 0               | 0   | 0                                 | -                            |
|        |                  | P                            | +                         | N/A | ++                          | ++  | +                                | 0     | +   | +   | 0                          | N/A             | +   | 0                                 | +                            |

#### 4.6.1 Construction Effects

None of the options in the SEWCUS WRZ would require any new infrastructure or involve construction works and in consequence, construction effects have been assessed as neutral across all of the SEA objectives.

#### 4.6.2 Operational Effects

The four supply-side measures in the SEWCUS WRZ are designed to ensure continuous water supply during drought conditions.

Positive effects have been identified in respect of Population and Human Health (SEA Objectives 2.1 and 2.2) and Water (SEA Objective 4.3) across all options in the Sewcus WRZ. Moderate positive impacts have been identified for options 8121-1 Llwyn-on, 8121-2 Pontsticill and 8121-4 Grwyne Reservoir on these objectives associated with their moderate yields. Reflecting its smaller yield (0.4 Ml/d), the effects of Option 8121-3 Shon Sheffrey on this objective have been assessed as minor positive. The benefits from these options arise from the conservation of water resources, which will help maintain public water supplies during droughts, supporting public health and well-being, as well as the stability of the local and regional economy.

All options were assessed to have minor positive effects on Material Assets and Resource Use (SEA Objective 3.1) as these options make use of existing infrastructure with no changes to energy use, waste generation, or sustainable design anticipated. Additionally, the options show minor positive impacts on Water (SEA Objectives 4.2 and 4.3) through increased storage, reduced shoreline exposure, overall water conservation and maintenance of public water supplies.

All of the options in the WRZ are predicted to have minor positive effects on Air and Climate (SEA Objective 6.2), providing DCWW with additional capacity to manage drought conditions considered to contribute towards climate change adaptation. Additionally 8121-4 will have a minor positive effect on this objective due to the potential for the extra release to generate energy through hydropower.

Minor positive effects have also been identified to Biodiversity and Landscape (SEA Objectives 1.1 and 8.1) from option 8121-4 due to increases in river flow during drought conditions resulting in positive effects on qualifying features of the SAC and SSSI and the visual amenity of the area.

Options 8121-1 Llwyn-on, 8121-2 Pontsticill have been assessed to have major negative uncertain effects on Biodiversity (SEA Objective 1.1) during operation. The HRA concluded that the drought permit could have a likely significant effect (LSE) on the qualifying features Severn Estuary Ramsar and Severn Estuary/ Môr Hafren SAC particularly with respect to impacts on migratory fish (specifically Atlantic salmon). These impacts could affect the integrity of the European site. This assessment is uncertain until the scale and likelihood of the adverse effect can be confirmed through further data collection. Option 8121-3 is predicted to have a minor negative uncertain effect on Biodiversity (SEA Objective 1.1) due to reduced flow and habitat availability, potentially affecting fish and macroinvertebrate communities but with residual uncertainty due to availability and age of recent survey data. The cumulative effect of implementing both permits is assessed as minor negative.

All options were found to have moderate to minor negative effects on Water (SEA Objective 4.2) due to reductions in river flows and changes in flow hydraulics, which could affect river habitats. Additionally, all options, except 8121-4, are anticipated to have minor negative effects on Water (SEA Objective 4.1) related water quality and WFD objectives. Some uncertainty is reported due to limited water quality data availability.

Except for Option 8121-3, all options are expected to have minor negative effects on Landscape (SEA Objective 8.1), particularly due to their location within the Bannau Brycheiniog National Park, where reduced river flows would be noticeable in this designated scenic area. Furthermore, minor negative uncertain effects on Archaeology and Cultural Heritage (SEA Objective 7.1) were identified for Option 8121-2 due to potential effects on a scheduled monument with remaining uncertainty around the current dependency of this asset on the water environment.

## 4.7 TYWI GOWER CUS

Two supply-side measures have been identified and assessed for the Tywi Gower CUS WRZ; this option is described in **Table 4-11**. A summary of the assessment of these options is presented in **Table 4-12** with commentary on the likely significant construction and operational effects provided below. Detailed assessments are contained at **Appendix E**.

Table 4-11: Draft Drought Plan Supply-side Measures: Tywi Gower CUS

| Ref        | Option       | Yield (ML/d) | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------|--------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8201-1(ii) | Crai         | 1.36         | <p>The proposed scheme will seek a temporary reduction in the volume of compensation flow normally required from the reservoir which will help conserve reservoir storage and maintain essential public water supplies during drought conditions. Implementation of the drought order will also help to improve the prospect of reservoir recovery over the winter.</p> <p>During the period June to November inclusive, reduce the compensation release normally required from Crai Reservoir by up to 20%. That is, reduce the compensation release by 1.36 ML/d, reducing it from 6.82 ML/d to 5.46 ML/d.</p> <p>The scheme will require a drought order to be granted to allow it to be implemented. This will require an application to be made to Welsh Government to temporarily vary abstraction licence 20/56/53/02. A drought order application will seek one of the above temporary variations, (option (i) or option (ii)), in respect of the compensation release requirement of the licence.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 8201-2(ii) | Ystradfellte | 1            | <p>Ystradfellte Reservoir is located in the South West Area, within the Tywi Gower (8201) water resource zone (WRZ). Ystradfellte Reservoir is formed by a dam on the Afon Dringarth which is in Powys and wholly within the Bannau Brycheiniog National Park.</p> <p>If granted, this option would involve a temporary reduction in the volume of compensation flow normally required from the reservoir which will help conserve reservoir storage and maintain essential public water supplies during drought conditions. Implementation of the drought permit will also help to improve the prospect of reservoir recovery over the winter.</p> <ul style="list-style-type: none"> <li>During the period May to October inclusive, reduce the compensation release normally required from Ystradfellte Reservoir by up to 20%. That is, reduce the compensation release by up to 1.0 ML/d, potentially reducing it from 5.0 ML/d to 4.0 ML/d.</li> </ul> <p>The scheme will require a drought permit to be granted to allow it to be implemented.</p> <p>When a drought permit is in place, scenario modelling of minimum storage and refill probability will continue. If there is a meaningful improvement in the minimum storage from the scenario modelling, and consequently a reduction in the risk of entering Emergency Storage, operation could revert to the normal licensed compensation release before the end of the permit period.</p> <p>No additional infrastructure would be required to enable this option to be implemented.</p> |

Table 4-12: Supply-side Measures Assessment Summary: Tywi Gower CUS

| Ref        | Option Name  | Negative (N) or Positive (P) | SEA Topics and Objectives |     |                             |     |                                  |       |     |     |                            |                 |     |                                   |                              |
|------------|--------------|------------------------------|---------------------------|-----|-----------------------------|-----|----------------------------------|-------|-----|-----|----------------------------|-----------------|-----|-----------------------------------|------------------------------|
|            |              |                              | Biodiversity              |     | Population and Human Health |     | Material Assets and Resource Use | Water |     |     | Soil, Geology and Land Use | Air and Climate |     | Archaeology and Cultural Heritage | Landscape and Visual Amenity |
|            |              |                              | 1.1                       | 1.2 | 2.1                         | 2.2 | 3.1                              | 4.1   | 4.2 | 4.3 | 5.1                        | 6.1             | 6.2 | 7.1                               | 8.1                          |
| 8201-1(ii) | Crai         | N                            | ---/?                     | N/A | N/A                         | 0   | 0                                | 0     | --  | N/A | 0                          | 0               | 0   | 0                                 | -                            |
|            |              | P                            | N/A                       | N/A | +                           | +   | 0                                | N/A   | N/A | +   | 0                          | N/A             | +   | N/A                               | 0                            |
| 8201-2(ii) | Ystradfellte | N                            | --/?                      | N/A | 0                           | -   | 0                                | -/?   | --  | N/A | 0                          | 0               | 0   | 0                                 | 0                            |
|            |              | P                            | N/A                       | N/A | +                           | +   | +                                | N/A   | +   | +   | N/A                        | N/A             | +   | N/A                               | 0                            |

#### 4.7.1 Construction Effects

None of the options in the Tywi Gower CUS WRZ would require any new infrastructure or involve construction works and in consequence, construction effects have been assessed as neutral across all of the SEA objectives.

#### 4.7.2 Operational Effects

No significant positive effects were identified during the assessment. However, both options in the Tywi Gower WRZ demonstrate positive effects in relation to Population and Human Health (SEA Objectives 2.1 and 2.2), Water (SEA Objective 4.3), and Air and Climate (SEA Objective 6.2). These benefits stem from the minor yields of less than 2 Ml/d, which contribute to water resource conservation, supporting public health and well-being, and enhancing the stability of the local and regional economy. Additionally, these options would provide DCWW with increased capacity to manage drought conditions, supporting climate change adaptation efforts.

Significant negative effects were identified for option 8201-1(ii) concerning Biodiversity (SEA Objective 1.1) with moderate negative effects for option 8201-2(ii) whilst for both options moderate negative effects were identified for Water (SEA Objective 4.2). Option 8201-1(ii) Crai is associated with moderate negative impacts on river hydraulics and fish habitats, particularly affecting the River Usk/Afon Wysg SAC and River Usk Tributaries SSSI. This would lead to moderate negative effects on the qualifying features of these areas, although there is uncertainty regarding the scale and the likelihood of the impact on the integrity of the SAC.

Option 8201-2(ii) Ystradfellte also has moderate negative effects on Water (SEA Objective 4.2) due to similar issues with river hydraulics and habitats, particularly affecting fish habitats and migration. The scale of these effects remains uncertain.

Minor negative effects were identified for Option 8201-2(ii) with respect to Population and Human Health (SEA Objective 2.2) due to reduced river flows, which could affect water-dependent activities in the Bannau Brychieniog National Park. A minor negative effect was also noted on Water (SEA Objective 4.1) due to some water quality pressures, though uncertainties remain due to insufficient monitoring data.

Option 8201-1(ii) could have a minor negative effect on Landscape and Visual Amenity (SEA Objective 8.1), due to reduced river flows impacting visual amenity within the Bannau Brychieniog National Park.



## 4.8 NORTH CEREDIGION

Two supply-side measures have been identified and assessed for the North Ceredigion WRZ; this option is described in **Table 4-13**. A summary of the assessment of these options is presented in **Table 4-14** with commentary on the likely significant construction and operational effects provided below. Detailed assessments are contained at **Appendix E**.

Table 4-13: Draft Drought Plan Supply-side Measures: North Ceredigion

| Ref    | Option               | Yield (ML/d) | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------|----------------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8203-2 | Nantymoch            | 5            | <p>Nantymoch is a reservoir in West Wales which forms part of the Cwm Rheidol hydroelectric power (HEP) scheme and the headwaters of the reservoir include the Afon Hengwm, as part of the North Ceredigion WRZ. Downstream, the reservoir flows into the Afon Rheidol, and continues on to Dinas Reservoir, located east of Aberystwyth. The EAR states that details of existing operating arrangements are currently not known, although it is understood that up to 160ML/d may be released from Nantymoch Reservoir to drive a 13MW hydro-electric plant as the water passes downstream via the Afon Rheidol to Dinas Reservoir.</p> <p>The option involves a temporary pumped abstraction from Nantymoch Reservoir, of up to 5ML/d, to be transferred into the raw water main between Llyn Llygad Rheidol Reservoir and Bontgoch water treatment works (WTW), to support demands in the North Ceredigion WRZ. Drought permits may remain in force for a period of up to six months, and they can be extended for up to a further six months.</p> <p>To enable this option to be implemented, pumping would be required to abstract the water and to transfer to the raw water main between Llyn Llygad Rheidol Reservoir and Bontgoch WTW. The exact nature and location of temporary infrastructure is not known at present; however, it is likely to require above ground pumps and generator(s) and pipelines. The distance between the abstraction point (at the foot of Nantymoch Reservoir) and the raw water main (located just south of the dam itself over which the pipeline would be laid) is estimated to be approximately 400m.</p> |
| 8203-3 | Llyn Craig Y Pistyll | 0.36         | <p>The proposed scheme is to reduce the compensation flow normally required from the reservoir, to conserve reservoir storage and help ensure there is enough resource to maintain essential public water supplies in the North Ceredigion area throughout a severe drought without the need for more extreme customer side measures.</p> <p>The scheme will require a drought permit to be granted to allow it to be implemented. This will require an application to be made to NRW. A drought permit application will seek to temporarily vary abstraction licence 23/64/12/1, to make the following changes: -</p> <ul style="list-style-type: none"> <li>• during the period July to December inclusive</li> <li>• reduce the compensation release normally required from Llyn Craig-y-Pistyll Reservoir by up to 20%. That is, reduce the compensation release by up to 0.36 ML/d. A maximum reduction from 1.81 ML/d to 1.45 ML/d.</li> </ul> <p>When a drought permit is in place, monitoring of Llyn Craig-y-Pistyll Reservoir level and modelled prediction of its refill may provide confidence that the drought risk has passed. Operation could then revert to the normal licensed freshet allocation before the end of the permit period.</p>                                                                                                                                                                                                                                                                                                                                                                                           |

Table 4-14: Supply-side Measures Assessment Summary: North Ceredigion

| Ref    | Option Name          | Negative (N) or Positive (P) | SEA Topics and Objectives |                             |                                  |       |                            |                 |                                   |                              |     |     |     |     |     |
|--------|----------------------|------------------------------|---------------------------|-----------------------------|----------------------------------|-------|----------------------------|-----------------|-----------------------------------|------------------------------|-----|-----|-----|-----|-----|
|        |                      |                              | Biodiversity              | Population and Human Health | Material Assets and Resource Use | Water | Soil, Geology and Land Use | Air and Climate | Archaeology and Cultural Heritage | Landscape and Visual Amenity |     |     |     |     |     |
|        |                      |                              | 1.1                       | 1.2                         | 2.1                              | 2.2   | 3.1                        | 4.1             | 4.2                               | 4.3                          | 5.1 | 6.1 | 6.2 | 7.1 | 8.1 |
| 8203-2 | Nantymoch            | N                            | 0                         | 0                           | 0                                | 0     | -                          | 0               | 0                                 | 0                            | 0   | -   | -   | 0   | -   |
|        |                      | P                            | N/A                       | N/A                         | ++                               | ++    | N/A                        | N/A             | N/A                               | ++                           | N/A | N/A | +   | N/A | N/A |
| 8203-3 | Llyn Craig Y Pistyll | N                            | --                        | N/A                         | 0                                | 0     | 0                          | 0               | --                                | N/A                          | 0   | 0   | 0   | 0   | 0   |
|        |                      | P                            | N/A                       | N/A                         | +                                | +     | 0                          | 0               | +                                 | +                            | N/A | N/A | +   | N/A | 0   |

#### 4.8.1 Construction Effects

No significant positive or negative construction effects were identified during the assessment.

Option 8203-2 Nantymoch involves the temporary siting of above-ground infrastructure (e.g., pumps and generators) to enable water abstraction from Nantymoch Reservoir. This will require the movement of plant and materials (such as pumps and pipes), resulting in vehicle movements and fuel use, which would lead to air emissions, including carbon emissions. The carbon embodied within the temporary infrastructure also contributes to this effect. As a result, a minor negative effect has been identified under Material Assets and Resource Use (SEA Objective 3.1), and Air and Climate (SEA Objectives 6.1 and 6.2).

#### 4.8.2 Operational Effects

Moderate positive effects have been identified for Option 8203-2 on Population and Human Health (SEA Objectives 2.1 and 2.2) due to its moderate yield of 5 MI/d, which will help maintain public water supplies during drought, supporting public health, well-being, and the stability of the local and regional economy. As a result, moderate positive effects have also been identified on Water (SEA Objective 4.3) due to water conservation for public supply.

Option 8203-3 Llyn Craig Y Pistyll, with a smaller yield of 0.36 MI/d, provides similar benefits but at a reduced scale, resulting in minor positive effects on Population and Human Health (SEA Objectives 2.1 and 2.2) and Water (SEA Objective 4.3). Additionally, Option 8203-3 will have minor positive impacts on Water (SEA Objective 4.2) through increased storage and reduced shoreline exposure.

Both options will have minor positive effects on Air and Climate (SEA Objective 6.2) by providing DCWW with additional capacity to manage drought conditions, contributing to climate change adaptation.

Moderate negative impacts have been identified for Option 8203-3 on Biodiversity (SEA Objective 1.1) due to the potential for adverse effects on designated species and WFD status receptors. Additionally, moderate negative impacts are anticipated from alterations to river hydraulics and the associated effects on river habitats (SEA Objective 4.2).

The operation of Option 8203-2 will involve additional pumping to abstract up to 5 MI/d and transfer it over approximately 400m. The temporary pumping will require energy and fuel, resulting in carbon emissions, which contribute to minor negative impacts under Material Assets and Resource Use (SEA Objective 3.1) and Air and Climate (SEA Objectives 6.1 and 6.2).

The temporary infrastructure may temporarily affect local landscape character and visual amenity, particularly for recreational users in the Southern Cambrian Mountains. As a result, a minor negative impact has been identified under Landscape and Visual Amenity (SEA Objective 8.1).

## 4.9 PEMBROKESHIRE

Two supply-side measures have been identified and assessed for the North Ceredigion WRZ; these options are described in **Table 4-15**. A summary of the assessment of these options is presented in **Table 4-16** with commentary on the likely significant construction and operational effects provided below. Detailed assessments are contained at **Appendix E**.

Table 4-16Table 4-15: Draft Drought Plan Supply-side Measures: Pembrokeshire

| Ref    | Option    | Yield (Ml/d) | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------|-----------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8206-1 | Crowhill  | 7.25         | <p>The proposed scheme is to lower the river flow at which abstraction at Crowhill must cease. For the purpose of this description and assessment, we will call this river flow the 'hands-off flow' (HoF). It is the river flow immediately downstream of the abstraction at Crowhill.</p> <p>The scheme will require a drought order to be granted to allow it to be implemented. This will require an application to be made to Welsh Government. A drought order application will seek to temporarily vary the DCWW abstraction licence 22/61/03/0001/v001 (Schedule B) as follows: -</p> <ul style="list-style-type: none"> <li>• during the period June to November inclusive,</li> <li>• reduce the abstraction licence HoF by 20%. That is, a reduction of 7.52 Ml/d, reducing the limiting flow set in the abstraction licence from 37.58 Ml/d to 30.06 Ml/d.</li> <li>• a definition (equivalent flow) to be agreed with NRW for what the reduced HoF at Crowhill relates to in terms of a flow at NRW's Treffgarne flow gauging station; a proportionate Treffgarne flow of approximately 23.45 Ml/d is suggested pending fuller analysis.</li> <li>• all the other conditions of the abstraction licence remaining unchanged.</li> </ul> <p>When the drought order is in place, monitoring of the water resource position in the Pembrokeshire water supply area, and modelled prediction of its recovery to normal, may provide confidence that the drought risk has passed. Operation could then revert to the normal licensed HoF before the end of the drought order period.</p> |
| 8206-7 | Llys Fran | n/a          | <p>In accordance with the Llys-y-Fran Reservoir Section 158 operating agreement, a total of 995Ml of the storage volume within Llys-y-Fran Reservoir is allocated to the freshet bank, to be released for fisheries management purposes at the direction of Natural Resources Wales (NRW). The drought order involves using 385Ml (approximately 40%) of this volume of storage for public water supply, so that only a limited number (three) of freshet releases could take place during the period of implementation.</p> <p>Drought orders may remain in force for a period of up to six months, and they can be extended for up to a further six months. However, the period of implementation for this drought order would only be August to November.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

Table 4-16: Supply-side Measures Assessment Summary: Pembrokeshire

| Ref    | Option Name | Negative (N) or Positive (P) | SEA Topics and Objectives |                             |                                  |       |                            |                 |                                   |                              |     |     |     |     |     |
|--------|-------------|------------------------------|---------------------------|-----------------------------|----------------------------------|-------|----------------------------|-----------------|-----------------------------------|------------------------------|-----|-----|-----|-----|-----|
|        |             |                              | Biodiversity              | Population and Human Health | Material Assets and Resource Use | Water | Soil, Geology and Land Use | Air and Climate | Archaeology and Cultural Heritage | Landscape and Visual Amenity |     |     |     |     |     |
|        |             |                              | 1.1                       | 1.2                         | 2.1                              | 2.2   | 3.1                        | 4.1             | 4.2                               | 4.3                          | 5.1 | 6.1 | 6.2 | 7.1 | 8.1 |
| 8206-1 | Crowhill    | N                            | --                        | N/A                         | 0                                | 0     | 0                          | -               | --                                | N/A                          | 0   | 0   | 0   | 0   | 0   |
|        |             | P                            | N/A                       | N/A                         | +++                              | +++   | +                          | 0               | N/A                               | +++                          | N/A | N/A | +   | N/A | N/A |
| 8206-7 | Llys y Fran | N                            | 0                         | N/A                         | 0                                | 0     | 0                          | 0               | 0                                 | N/A                          | 0   | 0   | 0/? | 0   | 0   |
|        |             | P                            | 0                         | N/A                         | +                                | +     | +                          | +               | +                                 | +                            | N/A | N/A | +   | N/A | 0   |



#### **4.9.1 Construction Effects**

The two measures in the Pembrokeshire WRZ would not require any new infrastructure or involve construction works and in consequence, construction effects have been assessed as neutral across all the SEA objectives.

#### **4.9.2 Operational Effects**

Major positive impacts have been identified for Option 8206-1 Crowhill on Population and Human Health (SEA Objectives 2.1 and 2.2) and Water (SEA Objective 4.3), attributed to the significant yield of 7.25 Ml/d that will be provided by this option. This yield will help maintain public water supplies during droughts, supporting public health, well-being, and the stability of both local and regional economies.

Option 8206-7 Llys y Fran, with a smaller yield, offers similar benefits but on a reduced scale, resulting in minor positive effects on Population and Human Health (SEA Objectives 2.1 and 2.2) and Water (SEA Objective 4.3). It will also have minor positive effects on Water (SEA Objectives 4.1 and 4.2) through increased storage and improved reservoir water quality.

Both options will require no additional energy or resources. They will provide DCWW with increased capacity to manage drought conditions, contributing to climate change adaptation. As a result, minor positive effects have been identified under Material Assets and Resource Use (SEA Objective 3.1) and Air and Climate (SEA Objective 6.2).

For Option 8206-1, moderate negative effects have been identified on Water (SEA Objective 4.2) due to the potential for moderate reductions in river flow. This reduction could lead to likely significant effects (LSEs) through various pathways, potentially impacting the qualifying features of the Afonydd Cleddau / Cleddau Rivers SAC and the Western Cleddau River SSSI, resulting in a moderate negative impact on Biodiversity (SEA Objective 1.1).

Minor risks to water quality are also anticipated, partly due to the presence of two Combined Sewer Overflows (CSOs), leading to a minor negative effect on Water (SEA Objective 4.1).

## 4.10 SECONDARY, CUMULATIVE AND SYNERGISTIC EFFECTS

The SEA Regulations require that the cumulative effects of a plan and programme are taken into account. This SEA considers cumulative effects in terms of:

- The potential cumulative effect of individual measures within a WRZ;
- The potential cumulative effect of individual measures between WRZs; and
- The cumulative effects of the draft Drought Plan in combination with other plans and programmes.

### 4.10.1 Overview of the Cumulative effects of Draft Drought Plan Options

The potential for the draft Drought Plan options to be implemented in-combination depends on several factors, including the nature, location, and timing of each option, the number of options applied within a WRZ or across the broader supply area, and how these options interact with other plans or programmes. The effects also depend on the sensitivity of the receptors to each option, both alone and in-combination.

In principle, the options outlined in the draft Drought Plan are not necessarily intended to be implemented together. The options proposed within each WRZ may be applied individually or, in some cases, together. For example, in the North Eryri Ynys Môn WRZ, three feasible options are identified and equally feasible, but they may not be implemented simultaneously. The selection of which options to apply will depend on factors such as drought severity, operational needs, and the potential environmental impacts of each option, as informed by the SEA and HRA of the Drought Plan. Additionally, some options are mutually exclusive and cannot be implemented together.

As a result, the cumulative effects of the draft Drought Plan options are not necessarily additive. This distinguishes the Drought Plan from other plans, such as the WRMP, where multiple 'preferred' options are typically selected for each WRZ. Therefore, it may be misleading to assess specific combinations of options within a WRZ or across the supply area when attempting to quantify their cumulative effects.

In **Table 4-17**, an overview of the potential for cumulative effects within a WRZ, between WRZ and with other plans and programmes is presented against the eight SEA objectives in the assessment framework. These issues are explored further in the following sections.

Table 4-17: General Commentary on the Potential for Options to Act cumulatively against the Assessment Framework

| SEA Topic                     | Potential for Cumulative Effects within WRZs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Potential for Cumulative Effects between WRZs                                                                                                                                                                                                                                                                                                                                             | Potential for Cumulative Effects with other Plans and Programmes                                                                                |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Biodiversity, Flora and Fauna | Cumulative effects are most likely where measures are located within same catchment. Even where located in separate catchments, there is the potential for cumulative effects on receptors such as coastal designated sites into which rivers from a number of catchments may flow (e.g. Severn Estuary, River Usk) There is also the potential for cumulative 'general disturbance' to biodiversity from the construction and operation of measures; the more measures that are implemented within a WRZ, the greater the potential for disturbance of biodiversity. | Potential cumulative effects between WRZs are similar to those listed within WRZs.<br><br>There is a greater likelihood of cumulative effects on lower reaches of water bodies that cross WRZ boundaries, specifically of the large rivers in Wales including the Dee, Wye and Usk. There is also greater potential for cumulative effects on receptors such as coastal designated sites. | Potential for cumulative effects depending on the nature, location and timing of the draft Drought Plan measure and other plans and programmes. |

| SEA Topic                        | Potential for Cumulative Effects within WRZs                                                                                                                                                                                                                                                                                                                                                                                                                                            | Potential for Cumulative Effects between WRZs                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Potential for Cumulative Effects with other Plans and Programmes |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| Population and Human Health      | <p>Potential cumulative effects from disturbance to those living and working in WRZs where measures are located close together. This includes effects on recreational activities where measures are located in proximity or in the same catchment/waterbody.</p> <p>Benefits of yield are additive; the more measures implemented within a zone, the greater the yield and the greater the benefits will be to security of supply and maintaining economic growth during a drought.</p> | <p>Potential cumulative effects between WRZs are similar to those listed within WRZs. This includes where options are located in large rivers in Wales e.g. Dee, Wye and Usk and also where multiple options are located within recreational areas such as National Parks</p> <p>Benefits of yield are additive; the more measures implemented, the greater the yield and the greater the benefits will be to security of supply and maintaining economic activity during drought across the supply area.</p> | As above.                                                        |
| Material Assets and Resource Use | <p>Options can act cumulatively regardless of location within a WRZ.</p> <p>Effects are additive; the more measures implemented within a zone, the greater the amounts of materials and energy used and the greater the effects will be against this objective.</p>                                                                                                                                                                                                                     | <p>Options can act cumulatively regardless of location.</p> <p>Effects are additive between WRZs; the more measures implemented, the greater the amounts of materials and energy used and the greater the effects will be against this objective.</p>                                                                                                                                                                                                                                                         | As above.                                                        |
| Water                            | <p>Cumulative effects are most likely where measures are located within same catchment/water body. Cumulative effects are less likely where measures within a WRZ would be implemented within different catchments, although there is the potential for measures to act in combination on the ultimate downstream receptor (e.g. reductions in flows in Severn/Wye/Usk/Taff entering the Severn Estuary).</p>                                                                           | <p>Potential cumulative effects between WRZs are similar to those listed within WRZs. There is a greater likelihood of cumulative effects on lower reaches of water bodies that cross WRZ boundaries, specifically of the large rivers in Wales including the Dee, Wye and Usk.</p>                                                                                                                                                                                                                           | As above.                                                        |
| Soil, Geology and Land Use       | <p>Cumulative effects are most likely where measures are located within same catchment/water body, where measures have potential to affect the same receptors. Where not located in same catchment, effects will be</p>                                                                                                                                                                                                                                                                 | <p>Potential cumulative effects between WRZs are similar to those listed within WRZs. There is a greater likelihood of cumulative effects on wetland soils located adjacent to lower reaches of</p>                                                                                                                                                                                                                                                                                                           | As above.                                                        |

| SEA Topic                         | Potential for Cumulative Effects within WRZs                                                                                                                                                                                                                                                                                           | Potential for Cumulative Effects between WRZs                                                                                                                                                                        | Potential for Cumulative Effects with other Plans and Programmes |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
|                                   | additive, with potentially greater areas of soils being affected by larger numbers of measures.                                                                                                                                                                                                                                        | water bodies that cross WRZ boundaries, specifically of the large rivers in Wales including the Dee, Wye and Usk.                                                                                                    |                                                                  |
| Air and Climate                   | Options can act cumulatively regardless of their location within a WRZ.<br>Effects are additive; the more options implemented within a zone, the greater the amounts of air quality emissions and the greater amounts of materials and energy used (and carbon emitted), therefore the greater the effects against this SEA objective. | The more options implemented across the zones, the greater the amounts of air quality emissions, materials and energy used (and greenhouse gasses emitted) and the greater the effects against this SEA objective.   | As above.                                                        |
| Archaeology and Cultural Heritage | Potential for cumulative effects on heritage assets where measures are located in close proximity to each other.                                                                                                                                                                                                                       | Potential cumulative effects between WRZ are similar to those listed within WRZ.                                                                                                                                     | As above.                                                        |
| Landscape and Visual Amenity      | Potential for cumulative effects where measures are located in close proximity to each other.<br>Effects will be greater for measures requiring new infrastructure in sensitive landscapes (National Landscapes, National Parks).                                                                                                      | Potential cumulative effects between WRZ are similar to those listed within WRZ.<br>Effects will be greater for measures requiring new infrastructure in sensitive landscapes (National Landscapes, National Parks). | As above.                                                        |

#### 4.10.2 The Potential Cumulative Effect of Individual Measures within a Water Resource Zone

As described above, the extent to which the draft Drought Plan options can act in-combination is dependent on a number of variables. Within a WRZ, the primary considerations are the number of measures in a zone, the locations of the options relative to each other, the potential hydrological connectivity of the options, the likelihood of more than one option being implemented within the zone and the timing of implementation.

**Table 4-18** considers the extent to which cumulative effects within a WRZ are possible from the supply-side options based on the number of options within a zone and their location relative to one another. The commentary below focuses on negative effects. However, it should be noted that where drought options are implemented simultaneously within a WRZ, there would likely be positive cumulative effects on human health and wellbeing (SEA Objective 2.1) and economy (SEA Objective 2.2) and climate resilience (SEA Objective 6.2) relating to the additional water being made available to support the population and improve resilience to climate change during a drought.

Table 4-18: Potential for Options to Act in Combination within WRZs

| Water Resource Zone |                          | Potential for Cumulative Effects within WRZs | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------|--------------------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8001                | North Eryri / Ynys Môn   | Yes                                          | Two out of three options in this WRZ affect the same water body (Llyn Cwellyn) however they would be applied for concurrently as opposed to simultaneously, therefore, there is potential for significant cumulative effects.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 8012                | Clwyd Coastal            | Yes                                          | <p>All options in this zone are within the catchment of the Afon Clwyd and could therefore act in combination, with the exception of 8012-1 and 8012-6 which are mutually exclusive and would not run concurrently.</p> <p>The HRA concluded no likely significant effects on the Liverpool Bay / Bae Lerpwl SPA (a downstream receptor) as all features of this site are marine and the hydrological impact of each option ceases prior to Liverpool Bay. Options all conclude negligible hydrological impact to this site.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 8033                | Barmouth / Llein Harlech | Yes                                          | Two out of three options in this WRZ use the same water source (Llyn Cwmystradllyn) however one does not have hydrological impacts therefore significant cumulative effects are unlikely.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 8121                | SEWCUS                   | Yes                                          | Two of the four options in this WRZ affect the same waterbody (Afon Taf). There is potential for significant cumulative effects on Biodiversity (SEA Objective 1.1). This is due to impacts to the Severn Estuary Ramsar and Severn Estuary/ Môr Hafren SAC through impacts to migratory salmon potentially using Reaches 1 and 2, the Afon Taf, as a migratory corridor and for juvenile habitat, for the Llwyn-on (8121-1) and Ponsticill (8121-2) drought options. Through operation of both of these drought options together, Reach 3 will subject to moderate hydrological impacts, previously assessed as negligible for each option alone. The HRA concluded LSE in combination is predicted for all three reaches due to the declining status of salmon salmo salar populations in the Severn Estuary and migratory water courses. Due to the absence of data there is uncertainty regarding the level of impact the options will have on salmon in combination. Until further data is collected and the scale of the potential impact from the drought options better understood (including in Reach 3), this is assessed as a significant (uncertain) impact and the HRA concluded adverse effect on site integrity in combination. |
| 8201                | Tywi Gower CUS           | No                                           | The two options affect different waterbodies (Afon Crai and Afon Dringarth) and therefore significant cumulative effects are unlikely.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| Water Resource Zone |                  | Potential for Cumulative Effects within WRZs | Comments                                                                                                                                                   |
|---------------------|------------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8203                | North Ceredigion | No                                           | The two options affect different waterbodies (Afon Rheidol and Afon Leri) and therefore significant cumulative effects are unlikely.                       |
| 8206                | Pembrokeshire    | No                                           | The two options affect different waterbodies (Western Cleddau and Afon Syfynwy/Eastern Cleddau) and therefore significant cumulative effects are unlikely. |

#### 4.10.3 Cumulative Effects Between Water Resource Zones

The assessment of cumulative effects also needs to consider the potential for the cumulative effect from the implementation of options within different WRZs. No drought options included in the Drought Plan will have significant cumulative negative effects between WRZ as they do not impact on the same waterbodies or designated sites.

#### 4.10.4 Cumulative Effects of the Draft Drought Plan In-combination with Other Plans and Programmes

The following subsections consider the cumulative effects of the draft Drought Plan in-combination with other plans and programmes including:

- DCWW's Final Water Resources Management Plan 2024;
- Neighbouring water company WRMP and Drought Plans; and
- National Policy Statements (NPS) and Nationally Significant Infrastructure Projects (NSIPs).

The cumulative effects of the draft Drought Plan in-combination with other plans and programmes are difficult to accurately assess given the inherent uncertainties concerning (inter alia): future changes to baseline environmental conditions; future drought conditions and the requirement to implement one or more of the measures contained in the draft Drought Plan within a WRZ; future population and economic growth; and the deliverability of some NSIPs (and the potential for new NSIPs to be brought forward). As such, it will be necessary to keep under review these factors as the Drought Plan is implemented (e.g. in EARs) to ensure that the latest and most up to date information is considered.

##### 4.10.4.1 DCWW's Final Water Resources Management Plan 2024

It is not anticipated that there would be any additional adverse cumulative effects from implementation of the Final WRMP24 in-combination with the Drought Plan. The Final WRMP24 seeks to increase the level of drought resilience with an objective to move to a 1 in 500 drought resilience position by 2040 (to ensure alignment with the position being taken in England). The WRMP24 would support effective drought management through reduced leakage, progressive metering with a shift to smart meters, and network improvements as part of the preferred programme. The demand management options will also result in reduced required abstraction at source.

##### 4.10.4.2 Other Water Company Drought Plans, Water Resource Management Plans and Strategic Resource Options

The potential for cumulative effects resulting from the options within different water company drought plans is dependent on many of the factors including the timing of need of each respective option and the relative location of the options to each other. The greatest potential for cumulative effects on the majority of the SEA objectives will occur where options are located within the same catchments. However, it should be noted that cumulative effects will not occur where two water companies apply for Drought Orders or Drought Permits that affect the same water bodies. Where unacceptable risks to, for example designated sites, arise the Drought Order or Drought Permit will not be granted. For these reasons, cumulative effects against most SEA objectives will be avoided.

All of the neighbouring water companies existing plans include demand-side options in their WRMPs. Improved water efficiency and leakage reduction across the country will result in beneficial in-combination effects in terms of reducing the need for, or scale of, new water resources thereby helping protect the water environment



as well as reducing energy use through reduced water pumping and treatment. Neighbouring water companies also include demand management and water use restriction measures in their Drought Plans similar to those included in DCWW's DP 2025. All of the neighbouring water companies to DCWW are in the process of finalising or have recently published the latest versions of their WRMPs. DCWW is part of the Water Resources West regional group, and therefore consideration of cumulative effects from the WRMP options with existing DP measures of the other water companies, will be inherent to the process. No cumulative effects between supply-side options are anticipated with neighbouring water company WRMPs as they do not include options that would be implemented and become operational within the planning period for the draft Drought Plan.

Drought Plans of the following water companies are considered for potential cumulative effects:

- United Utilities Water
- Severn Trent Water
- Bristol Water
- Hafren Dyfrdwy

It should be noted that drought plans of other water companies are subject to review on timescales that may not be aligned with the timescale of DCWW's Drought Plan. The information used to carry out these assessments is considered to be the most up to date information available. The conclusions will be reviewed between the draft and final plan should additional information from the neighbouring water companies become available. The cumulative assessments should be reviewed at the time of implementation of any drought plan options to ensure that no changes to neighbouring water company drought plan and/or WRMP measures have been made in the intervening period, and therefore whether the assessment provided in this Environmental Report remains valid.

#### Severn Trent Water

There is one potential designated site which could experience an in-combination effect with DCWW's drought measures (Llywn Onn and Pontsticill), the Severn Estuary SAC, SPA and Ramsar. Severn Trent's Drought Plan 2022 considered the cumulative effects of the multiple implementation of drought permits/orders in the River Severn catchment by the various water companies. This assessment concluded that:

- cumulative effects of the South Staffordshire Water, Severn Trent Water and Environment Agency drought permits/orders are ameliorated to a large extent by the operation of the River Severn Regulation Scheme and management of flows to the estuary, even with a reduced prescribed flow at Bewdley under an Environment Agency River Severn drought order. In combination, there would be no greater than minor cumulative adverse effects on the lower River Severn and no likely significant effects on the Severn Estuary European Marine Site.

The DCWW draft Drought Plan has identified potential impacts to the Severn Estuary Ramsar and Severn Estuary/ Môr Hafren SAC through impacts to migratory salmon potentially using Reaches 1 and 2, the Afon Taff, as a migratory corridor and for juvenile habitat, for the Llwyn-on (8121-1) and Pontsticill (8121-2) drought options. In the absence of data for this species in these reaches, on a precautionary basis, adverse effect on integrity has been concluded in the HRA. Given the levels on uncertainty for the assessment alone, the potential for in-combination impacts is also uncertain. Until further data is collected and the scale of the potential impact from the drought options better understood, we must conclude adverse effect on integrity in combination with other schemes.

#### United Utilities

No cumulative impacts between drought options in DCWW's Drought Plan with United Utilities (UU) Drought Plan 2022 which would have potential for impact on European sites have been identified. UU's only drought option in Wales is Lake Vyrnwy and an Environmental Report has been prepared for this drought option which did not identify cumulative impacts with any other water company abstraction licences.

#### Bristol Water

The Bristol Water Drought Plan 2022 included four drought options which are hydrologically linked to the Severn Estuary EMS. A HRA Stage 2 Appropriate Assessment was undertaken which concluded no adverse effects to site integrity either alone or in-combination providing the mitigation measures are implemented as set out. As a result, no cumulative impacts between the drought options in DCWW's drought plan with Bristol Water's Drought Plan 2022 have been identified.

### Hafren Dyfrdwy

The Hafren Dyfrdwy Drought Plan 2020-2025 includes one supply option only, which is aimed at augmenting flows in the River Dee. A HRA screening appraisal was undertaken for the Drought Plan which concluded that No Likely Significant Effects (NLSE) are expected on the River Dee and Bala Lake SAC, the Berwyn and South Clwyd Mountains SAC/SPA or the Dee Estuary SAC/SPA/Ramsar as a result of the implementation of the augmentation of the River Dee with water abstracted from the Lower Pen-y-Cae Reservoir. As a result, no cumulative impacts between the drought options in DCWW's drought plan with Hafren Dyfrdwy's Drought Plan have been identified.

### Severn to Thames Transfer SRO

The Severn to Thames Transfer (STT) SRO involves the transfer of raw water to the South East region, utilising excess flows in the River Severn. Additional water sources will supplement flows in the River Severn, including releases from Vyrnwy Reservoir into the River Severn via the River Vyrnwy and a pipeline; diversion of treated water from Oswestry WTW (allowing a reduction in current abstractions on the River Severn); a reduction in licensed abstraction at Mythe; and the transfer of treated wastewater from Minworth and Netheridge WwTWs. The informal HRA undertaken to support the Gate 2 submission has highlighted the potential for impacts to the Severn Estuary EMS, however, concluded no adverse effect to site integrity during operation, although this assessment was uncertain with regards to potential impacts to water quality. This option is not included in the revised draft WRSE (Water Resources South East) Regional Plan as a preferred option nor under any of the adaptive pathways. However, it has been agreed through the regional reconciliation process that STT should continue to be progressed through the SRO process as it may be required under future adaptive plans. Therefore, it is likely that this would be outside of the timeframe for this drought plan for cumulative impacts to occur.

#### 4.10.4.3 National Policy Statements and Nationally Significant Infrastructure Projects

The Planning Act 2008 introduced a procedure to streamline the decision-making process for NSIPs. Under the Act, a developer wishing to construct a NSIP must first apply to the Secretary of State for development consent. National Policy Statements (NPSs) establish the need for specific types of infrastructure and provide planning guidance for promoters of NSIPs, and the basis for the examination by the Examining Authority and decisions by the Secretary of State on development consent order applications. A number of NPSs have been published which set out the definition, and in some cases the location, of NSIPs. The current status of NPSs is set out in **Table 4-19**.

**Table 4-19: Current Status of National Policy Statements**

| National Policy Statement (NPS)                                    | Status         | Are Potential Locations of NSIPs included in the NPS? |
|--------------------------------------------------------------------|----------------|-------------------------------------------------------|
| Overarching NPS for energy (EN-1)                                  | January 2024   | No                                                    |
| Natural gas electricity generating infrastructure (EN-2)           | January 2024   | No                                                    |
| Renewable energy infrastructure (EN-3)                             | January 2024   | No                                                    |
| Natural gas supply infrastructure and gas and oil pipelines (EN-4) | January 2024   | No                                                    |
| Electricity networks infrastructure (EN-5)                         | January 2024   | No                                                    |
| Nuclear power generation (EN-6)                                    | to end of 2025 | Yes                                                   |
| Ports                                                              | January 2012   | No                                                    |
| National Networks                                                  | May 2024       | No                                                    |
| Hazardous Waste                                                    | June 2013      | No                                                    |
| Waste Water                                                        | February 2012  | Yes                                                   |
| Geological Disposal Infrastructure                                 | October 2019   | No                                                    |
| Water Resources Infrastructure                                     | September 2023 | No                                                    |

The potential for in-combination effects has been considered for relevant significant projects and developments identified in the DCWW supply area, or affecting waterbodies downstream of abstractions (see **Table 4-20**). However, it must be recognised that a meaningful assessment of in-combination effects in this regard is not possible at this point in the drought planning process as there is no certainty over when the draft Drought Plan options might be deployed, nor necessarily the timescales for implementation of the NSIPs.

**Table 4-20: Current NSIPs and known major projects with the potential for 'in combination' effects with the Drought Plan options**

| Project                                                          | Status  | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------------------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HyNet Carbon Dioxide Pipeline                                    | Decided | A new build carbon dioxide (CO <sub>2</sub> ) pipeline that will transport CO <sub>2</sub> produced and captured by future hydrogen producing facilities and existing industrial premises in Northwest England and North Wales for offshore storage.                                                                                                                                                                                                                                                                                                                                                                                              |
| Hirwaun Power Station                                            | Decided | A gas-fired power station with a nominal generating capacity of up to 299 MW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| North Wales Wind Farms Connection                                | Decided | Construction of 132kV circuit between TAN Area A and SP Manweb's St Asaph grid substation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Tidal Lagoon Swansea Bay                                         | Decided | Tidal lagoon and associated electricity generating infrastructure with a nominal capacity of 240MW.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Glyn Rhonwy Pumped Storage                                       | Decided | Convert two disused slate quarries into a Pumped Storage Battery with a capacity of up to 99.9MW.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Abergelli Power                                                  | Decided | Gas-fired peaking plant and connection infrastructure with a capacity of up to 299 MW.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Wrexham Energy Centre                                            | Decided | A combined cycle gas turbine (CCGT) power station with a generating capacity of up to 299 MWe. The project will include an integral gas connection.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Brechfa Forest Connection                                        | Decided | Installation of a 132kV electric line of 28.6km (approximately 25.3km above ground and 3.3km below ground), connecting the consented Brechfa Forest West Wind Farm to an existing overhead line near Llandyfaelog.                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Internal Power Generation Enhancement for Port Talbot Steelworks | Decided | Enhancement of existing 95.7 Mega Watt electrical (MWe) power station and installation of two new boilers (nominally 164 Mega Watt Thermal (MWth)) and two turbines (nominally 65 Mega Watt Electrical (MWe)) each.                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Mynydd y Gwynt Wind Farm                                         | Decided | Construction of windfarm east of Aberystwyth within Powys Council local authority boundary. Up to 27 turbines with up to 81-89.1 MW generating capacity. Additional works: substation and control building, monitoring mast, electrical cables, new access tracks and widening existing tracks.                                                                                                                                                                                                                                                                                                                                                   |
| South Hook Combined Heat & Power Station                         | Decided | An integrated combined heat and power plant based on combined cycle gas turbine technology including combustion turbine generator(s); heat recovery steam generator(s); steam turbine generator(s); stack for discharge of combustion gases; electrical switchgear; and area reserved for carbon capture. The proposed CHP plant will have an installed capacity of up to 500MWe and produce sufficient electricity to both meet the existing LNG terminal's power needs and to export surplus electricity. New or upgraded electrical transmission connection, eventually to National Grid Electricity Transmission 400kV substation at Pembroke |

| Project                                                                                                 | Status                    | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                         |                           | Power Station, to be resolved and possibly to be subject of separate DCO application. A number of route options are currently being considered.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Brechfa Forest West Wind Farm                                                                           | Decided                   | The proposed development comprises the construction and operation of 28 wind turbine generators of up to 145 metres in height and other infrastructure integral to the construction and/or operation of the wind farm. The wind farm will have an installed capacity of between 56 and 84 megawatts. The developer has also proposed a smaller wind farm within the Brechfa forest known as Brechfa east. As the proposal is below the threshold for a nationally significant infrastructure project, the application will be submitted to the local authority.                                                                                                                                                                                                                                   |
| Clocaenog Forest Wind Farm                                                                              | Decided                   | Proposed wind farm project within the Clocaenog Forest located within the counties of Conwy and Denbighshire, North Wales. -Between 64 - 96MW - Max tip height - 145m -Total development area - 1,463 Ha -No. of turbines - 32 each providing a 2-3 MW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Mynydd y Gwynt Wind Farm                                                                                | Decided                   | Construction of windfarm east of Aberystwyth within Powys Council local authority boundary. Up to 27 turbines with up to 81-89.1 MW generating capacity. Additional works: substation and control building, monitoring mast, electrical cables, new access tracks and widening existing tracks.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| South Hook Combined Heat & Power Station                                                                | Decided                   | An integrated combined heat and power plant based on combined cycle gas turbine technology including combustion turbine generator(s); heat recovery steam generator(s); steam turbine generator(s); stack for discharge of combustion gases; electrical switchgear; and area reserved for carbon capture. The proposed CHP plant will have an installed capacity of up to 500MWe and produce sufficient electricity to both meet the existing LNG terminal's power needs and to export surplus electricity. New or upgraded electrical transmission connection, eventually to National Grid Electricity Transmission 400kV substation at Pembroke Power Station, to be resolved and possibly to be subject of separate DCO application. A number of route options are currently being considered. |
| Clocaenog Forest Wind Farm                                                                              | Decided                   | Proposed wind farm project within the Clocaenog Forest located within the counties of Conwy and Denbighshire, North Wales. -Between 64 - 96MW - Max tip height - 145m -Total development area - 1,463 Ha -No. of turbines - 32 each providing a 2-3 MW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Hinkley Point C New Nuclear Power Station / Hinkley Point C New Nuclear Power Station Material Change 1 | Decided / Pre-application | The proposal is for a nuclear power station with two nuclear reactors capable of generating a total of up to 3,260MW of electricity at Hinkley Point C and associated development. / Removal of requirement to install Acoustic Fish Deterrent system (associated with cooling water intake heads) amendments to the Interim Spent Fuel Store and Meteorological Mast, addition of new Hinkley Point Substation and Sluice Gate Storage Racks.                                                                                                                                                                                                                                                                                                                                                    |
| Portishead Branch Line – MetroWest Phase 1                                                              | Decided                   | The project is to rebuild the disused branch line between Portishead and Pill and reintroduce passenger train services to Bristol and beyond.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

Cumulative adverse environmental effects of the DCWW drought permits/orders with these projects are not considered likely as the zones of influence with the Drought Plan measures are unlikely to overlap, with the exception of Hinkley Point C Nuclear Power Station and Portishead Branch Line – MetroWest Phase 1 which

are both in proximity to the Severn Estuary EMS. The HRA<sup>190</sup> undertaken for Hinkley Point C concluded no adverse effects to site integrity of the Severn Estuary EMS. Site integrity cannot be considered to be adversely affected if the findings of an appropriate assessment demonstrate that the conservation objectives will not be undermined alone or in combination with other plans and programmes. Implementation of this project is likely to be delayed to outside of the planning period for the Drought Plan, therefore cumulative effects are considered unlikely. The Portishead Branch Line project is in close proximity to the Severn Estuary EMS, however, the HRA undertaken to inform the DCO application concluded no LSEs on qualifying fish assemblage during construction or operation.

The cumulative effects assessment would be reviewed at the time of the drought order/permit application. In the short-term, during construction, the non-essential use ban and emergency drought order may have some minor cumulative adverse effects with these projects by restricting use of water for some construction activities (for example, watering of new landscaping plants), although importantly not any water uses that are required for health and safety reasons.

#### 4.11 WFD COMPLIANCE SUMMARY

Informed through consideration of the post-mitigation impacts of the drought options, this section summarises which WFD water bodies and WFD elements within the water bodies have the potential for status deterioration as a result of the options in the Drought Plan. Only supply-side drought options are summarised here with demand side drought options all being WFD compliant activities. This section provides a guide to those water bodies where a WFD Regulation 18 exemption may be required should any deterioration in status be material between RBMP periods. This summary is presented in **Table 4-21**.

Table 4-21 WFD compliance summary table

| Ref       | Option                 | WFD deterioration risk (post mitigation)                                                                                                                                                                         |
|-----------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8001-2    | Llyn Cwellyn           | There is no risk of WFD deterioration in any WFD water bodies as a result of this drought plan option.                                                                                                           |
| 8001-7    | Llyn Cwellyn           | There is no risk of WFD deterioration in any WFD water bodies as a result of this drought plan option.                                                                                                           |
| 8001-4    | Ffynnon Llugwy         | There is the potential for deterioration in fish and macroinvertebrate status in the Llugwy - Nant Gwryd to Ffynnon Llugwy (GB110066054870) due to the operational impacts of the Ffynnon Llugwy drought permit  |
| 8033-34-2 | Llyn Bodlyn            | There is the potential for deterioration in fish status in the Ysgethin (GBGB110064048830) due to the operational impacts of the Llyn Bodlyn drought permit.                                                     |
| 8033-34-1 | Llyn Cwmystradllyn     | There is the potential for deterioration in fish and macrophyte status in the Cwmystradllyn (GB110065053690) due to the operational impacts of the Llyn Cwmystradllyn drought permit                             |
| 8033-34-4 | Llyn Cwmystradllyn     | There is no risk of WFD deterioration in any WFD water bodies as a result of this drought plan option.                                                                                                           |
| 8012-2    | Aled Isaf              | There is the potential for deterioration in fish status in the Aled – above Deunant (GB110066054930) and Aled – Elwy to Deunant (GB110066059770) due to the operational impacts of the Aled Isaf drought permit. |
| 8012-4    | Afon Aled              | There is no risk of WFD deterioration in any WFD water bodies as a result of this drought plan option.                                                                                                           |
| 8012-6    | Aled Isaf to Llyn Aled | There is no risk of WFD deterioration in any WFD water bodies as a result of this drought plan option.                                                                                                           |

<sup>190</sup> Environment Agency (2023) Habitats Regulation Assessment: HPC operational water discharge activity permit variation, EPR/HP3228XT/V005 (<https://assets.publishing.service.gov.uk/media/64b931e7ef5371000d7aef8f/Hinkley-Point-C-permit-variation-Habitats-Regulations-assessment-report-June-2023.pdf>)



| Ref                       | Option                 | WFD deterioration risk (post mitigation)                                                                                                                                                                                              |
|---------------------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8012-1                    | Llyn Aled              | There is no risk of WFD deterioration in any WFD water bodies as a result of this drought plan option.                                                                                                                                |
| 8121-1                    | Llwyn-on               | There is the potential for deterioration in fish status in Afon Taf Fawr - source to conf Taf Fechan (GB109057033170) due to the operational impacts of the Llwyn-on drought permit.                                                  |
| 8121-2                    | Pontsticill            | There is the potential for deterioration in fish status in Taf Fechan - source to conf Afon Taf Fawr (GB109057033160) due to the operational impacts of the Pontsticill drought permit.                                               |
| 8121-3                    | Shon Sheffrey          | There is the potential for deterioration in fish status in Afon Sirhywi - source to Rock Villas (GB109056032891) due to the operational impacts of the Shon Sheffrey drought permit.                                                  |
| 8121-4                    | Grwyne Reservoir       | There is no risk of WFD deterioration in any WFD water bodies as a result of this drought plan option.                                                                                                                                |
| 8201-1(ii)                | Crai                   | There is the potential for deterioration in fish status in Afon Crai - source to conf R Usk (GB109056033080) due to the operational impacts of the Crai drought permit.                                                               |
| 8201-2(ii)                | Ystradfellte           | There is the potential for deterioration in fish, macroinvertebrate and macrophyte status in the Dringarth - headwaters to confluence with Mellte (GB110058032420) due to the operational impacts of the Ystradfellte drought permit. |
| 8203-2                    | Nantymoch              | There is no risk of WFD deterioration in any WFD water bodies as a result of this drought plan option.                                                                                                                                |
| 8203-3                    | Llyn Craig Y Pistyll   | There is the potential for deterioration in fish status in Leri - upper (GB110064043580) due to the operational impacts of the Llyn Craig Y Pistyll drought permit.                                                                   |
| 8206-1                    | Crowhill               | There is the potential for deterioration in fish status in W Cleddau - Anghof conf to Cartlett Brook conf (GB110061031340) due to the operational impacts of the Crowhill drought order.                                              |
| 8206-7                    | Llys y Fran            | There is no risk of WFD deterioration in any WFD water bodies as a result of this drought plan option.                                                                                                                                |
| <b>Cumulative impacts</b> |                        |                                                                                                                                                                                                                                       |
| Cumulative                | Llwyn-on + Pontsticill | There is no additional risk of WFD deterioration in any WFD water bodies as a result of these drought options being operated cumulatively.                                                                                            |

## 4.12 CONTRIBUTION OF THE DRAFT DROUGHT PLAN TO WALES' WELLBEING GOALS AND THE OBJECTIVE FOR SMNR

As set out in Section 1.6, the Well-being of Future Generations (Wales) Act 2015 places a duty on public bodies including DCWW to carry out sustainable development, aimed at achieving the seven well-being goals for Wales. The well-being goals established by the Act are as follows:

- A prosperous Wales;
- A resilient Wales;
- A healthier Wales;
- A more equal Wales;
- A Wales of cohesive communities;
- A Wales of vibrant culture and thriving Welsh language; and



- A globally responsible Wales.

The Environment (Wales) Act 2016, meanwhile, has established an objective for the sustainable management of natural resources (SMNR) “to maintain and enhance the resilience of ecosystems and the benefits they provide and, in so doing— (a) meet the needs of present generations of people without compromising the ability of future generations to meet their needs, and (b) contribute to the achievement of the well-being goals in section 4 of the Well-being of Future Generations (Wales) Act 2015”.

The well-being goals and SMNR objective have been mapped to the SEA objectives that comprise the SEA assessment framework (see **Section 3.3**). Through the assessment of the draft Drought Plan measures against the SEA objectives, it is therefore possible to assess the contribution that the implementation of the Plan would make to the achievement of the goals and objective. A matrix has been used to record this assessment and is presented in **Table 4-22** below. Informed by the assessment of the supply-side and demand-side measures against the SEA objectives, as well as the cumulative effects of the draft Drought Plan (as summarised in the preceding section), a judgement has been made regarding whether, and the extent to which, the draft Drought Plan would support or detract from the achievement of each well-being goal (and by extension, the SMNR objective) in-turn with commentary provided to justify the conclusions reached.

Table 4-22: Assessment of the Contribution of the Draft Drought Plan to the Well-being Goals for Wales

Key:

| Symbol | Effect                                                                                                                  |
|--------|-------------------------------------------------------------------------------------------------------------------------|
| ↑      | The draft Drought Plan supports the achievement of the well-being goal.                                                 |
| ↔      | The draft Drought Plan will not make a contribution to the achievement of the well-being goal.                          |
| ↕      | The draft Drought Plan has a mixture of positive and negative effects regarding the achievement of the well-being goal. |
| ↓      | The draft Drought Plan does not support the achievement of the well-being goal.                                         |

| Well-being Goals                                                                                                                                                                                                                                                                                                                                                                                                               | Related SEA Objective | Contribution to the Wellbeing Goal | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>A prosperous Wales;</b><br>An innovative, productive and low carbon society which recognises the limits of the global environment and therefore uses resources efficiently and proportionately (including acting on climate change); and which develops a skilled and well- educated population in an economy which generates wealth and provides employment opportunities, allowing people to take advantage of the wealth | All SEA Objectives    | ↕                                  | The assessment of the draft Drought Plan measures has identified that, where measures involve the construction of new infrastructure, the associated capital expenditure may generate benefits in respect of the supply chain and local employment creation. Whilst at the individual scheme level such benefits are likely to be negligible, cumulatively they have been assessed as supporting the achievement of the well-being goal ‘a prosperous Wales’. The operation of the measures will also help to ensure the continuity of drinking water supplies during periods of drought which may in-turn support economic and population growth and improve resilience to the effects of climate change. The assessment of the draft Drought Plan measures against the SEA objectives has also, however, highlighted the potential for direct and indirect adverse environmental effects which has been assessed as not supporting the achievement of this well-being goal. These effects would be most significant during the operation of the supply-side measures and, in some cases, would include resource use and the emissions of greenhouse gases. However, it should be recognised that through the implementation of the measures, the draft |

| Well-being Goals                                                                                                                                                                                                                                                      | Related SEA Objective                                    | Contribution to the Wellbeing Goal | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| generated through securing decent work.                                                                                                                                                                                                                               |                                                          |                                    | Drought Plan seeks to ensure the continued supply of potable water whilst minimising any detrimental effects on the environment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>A resilient Wales;</b><br>A nation which maintains and enhances a biodiverse natural environment with healthy.<br>Functioning ecosystems that support social, economic and ecological resilience and the capacity to adapt to change (for example climate change). | All SEA Objectives                                       | ↕                                  | Overall, the draft Drought Plan seeks to ensure the continued supply of potable water during periods of drought and in this way, it will improve resilience to the effects of climate change, supporting the achievement of the well-being goal 'a resilient Wales'. During operation, the demand-side measures in particular are likely to have positive effects on water as they will either reduce leakage from the water supply network or the demand for water, helping to protect water resources. The assessment of the draft Drought Plan measures against the SEA objectives has identified the potential for direct and indirect adverse environmental effects which has been assessed as not supporting the achievement of this well-being goal. These effects would be particularly felt during the operation of the supply-side measures and could include impacts on (inter alia) biodiversity, soils, water and landscape which contribute to the resilience of Wales' ecosystems. However, these effects would be largely temporary and it is likely that adverse impacts would be mitigated where possible at the project level. |
| <b>A healthier Wales;</b><br>A society in which people's physical and mental well-being is maximised and in which choices and behaviours that benefit future health are understood.                                                                                   | SEA Objectives 1.1, 2.1, 2.2, 4.1, 4.2, 4.3, 6.1 and 6.2 | ↕                                  | It is expected that the draft Drought Plan will help to ensure the continuity of water supplies to DCWW customers during periods of drought. This has been assessed as supporting the achievement of the well-being goal 'a healthier Wales'. Emissions to air, alongside noise and vibration disturbance, during construction of the supply-side measures (where applicable) may have minor adverse effects on human health which has been assessed as not supporting the achievement of this well-being goal. However, any adverse impacts in this regard would be temporary and localised and, further, are likely to be managed through the implementation of best practice construction methods. There is the potential for the operation of the draft Drought Plan measures to affect biodiversity, water quality and quantity and landscape which may have indirect adverse impacts on human health (for example, due to impacts on recreation). However, any health effects in this regard would be temporary and are unlikely to be significant.                                                                                         |
| <b>A more equal Wales;</b><br>A society that enables people to fulfil their potential no matter what their background or circumstances (including their socio-economic background and circumstances).                                                                 | SEA Objectives 2.1 and 2.2.                              | ↑                                  | <p>As noted above, the draft Drought Plan measures will help to ensure the continuity of a safe and secure drinking water supply during periods of drought. This has been assessed as supporting the achievement of the well-being goal 'a more equal Wales'.</p> <p>The assessment of the draft Drought Plan measures has identified that, where measures involve the construction of new infrastructure, the associated capital expenditure may generate benefits in respect of the supply chain and local employment creation. Whilst at the individual scheme level such benefits are likely to be negligible, cumulatively they have been assessed as supporting the achievement of this well-being goal.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                |

| Well-being Goals                                                                                                                                                                                                                                                | Related SEA Objective                       | Contribution to the Wellbeing Goal | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>A Wales of cohesive communities;</b><br>Attractive, viable, safe and well-connected communities.                                                                                                                                                             | SEA Objective 2.1, 2.2, 6.1, 6.2, 8.1.      | ↕                                  | <p>The draft Drought Plan measures will help to ensure the continuity of a safe and secure drinking water supply during periods of drought which may in-turn support the sustainability of communities in the DCWW area. This has been assessed as supporting the achievement of the well-being goal 'a Wales of cohesive communities'. Emissions to air, alongside noise and vibration disturbance, during construction of the supply-side measures (where applicable) may have minor adverse effects on host communities which has been assessed as not supporting the achievement of this well-being goal. However, any adverse impacts in this regard would be temporary and localised and, further, are likely to be managed through the implementation of best practice construction methods. Further, the majority of measures are relatively remote with development likely to be distant from main settlements. The assessment of the draft Drought Plan measures against the SEA objectives has also highlighted the potential for direct and indirect adverse environmental effects including in respect of landscape which could affect the attractiveness of communities. However, any effects in this regard would be temporary and localised.</p> |
| <b>A Wales of vibrant culture and thriving Welsh language;</b><br>A society that promotes and protects culture, heritage and the Welsh language, and which encourages people to participate in the arts, and sports and recreation.                             | SEA Objective 7.1                           | ↔                                  | <p>Capital expenditure associated with the construction of the draft Drought Plan measures (where applicable) is unlikely to be of a scale that would contribute towards retaining local, Welsh speakers.</p> <p>There is the potential for the operation of the draft Drought Plan measures to affect cultural heritage, biodiversity, water quality and quantity and landscape which may have indirect adverse impacts on recreation. However, any effects in this regard would be temporary and are unlikely to be significant. Overall, the draft Drought Plan is not expected to make a contribution to the achievement of the well-being goal, 'a Wales of vibrant culture and thriving Welsh language'.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>A globally responsible Wales.</b><br>A nation which, when doing anything to improve the economic, social, environmental and cultural well-being of Wales, takes account of whether doing such a thing may make a positive contribution to global well-being. | SEA Objective 1.1, 2.1, 2.2, 3.1, 5.1, 6.2. | ↔                                  | <p>Taking into account the nature and scale of the draft Drought Plan measures, and that effects associated with their construction and operation would be predominantly felt at a local/sub-regional level, it is not expected that the draft Drought Plan would make a contribution to this well-being goal.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

**Table 4-22** demonstrates that the draft Drought Plan is likely to support the achievement of the majority of the well-being goals for Wales. This principally reflects the objective of the Plan and its associated measures to ensure the continuity of drinking water supplies to DCWW's customers during periods of drought.

The construction (where applicable) and operation of many of the draft Drought Plan measures will unavoidably require the use of natural resources and generate greenhouse gas emissions and could also result in adverse environmental effects, particularly during operation. However, it should be recognised that through the

implementation of the proposed measures, the draft Drought Plan will ensure the continued supply of potable water whilst minimising any detrimental effects on the environment. This will help protect and enhance the environment and promote the efficient use of water resources, making a long term contribution to the well-being goals for Wales and the objective for SMNR.

## 4.13 MITIGATION AND ENHANCEMENT

The potential effects of the draft Drought Plan measures are described in the sections above. In some cases, there is an opportunity to reduce some of the potential negative effects identified. The detail of this mitigation needs to be considered during the planning phases of each of the individual measures if and when they are taken forward for implementation.

Potential mitigation measures are included within each of the assessment matrices in **Appendix E** although these should be considered as a starting point for more detailed consideration as options are planned and developed. Where EARs have been developed for the options, these also include the identification of relevant mitigation at the species level which has informed the assessment of the draft Drought Plan measures contained in this report. Details of any proposed mitigation is available in **Appendix C** of each respective EAR.

Specific mitigation measures in the options assessment matrices include, for example:

- The adoption of best practice construction techniques (such as the use of sediment traps) in order to minimise or avoid the effects of construction on designated sites.
- Measures to minimise impacts of fish and other species such as the targeted installation of woody debris features to provide fish with the habitat required to support feeding and development (growth), gravel washing of spawning areas, deployment of aeration equipment and re-stocking following drought.
- River flow and water quality monitoring during the implementation of supply-side measures.
- The rental or re-use of onsite equipment in order to minimise resource use.

### 4.13.1 Species Specific Measures and Biodiversity

Most species-specific avoidance or mitigation measures can only be determined at the scheme level, following scheme-specific surveys, and 'best-practice' mitigation for a species will vary according to a range of factors that cannot be determined at this stage. In addition, some general 'best-practice' measures may not be relevant or appropriate to the interest features of the European sites concerned (for example, clearing vegetation over winter is usually advocated to avoid impacts on nesting birds; however, this is unlikely to be necessary to avoid effects on some SPA species (such as overwintering estuarine birds) and the winter removal of vegetation might actually have a negative effect on these species through disturbance).

However, the following general measures should be followed where possible to minimise the potential for impacts on species that are European site interest features unless project-level environmental studies or HRA indicate that they are not required or not appropriate, or that alternative or additional measures are more appropriate / necessary:

- Scheme design will aim to minimise the environmental effects by 'designing to avoid' potential habitat features that may be used by species that are European site interest features when outside the site boundary (e.g. linear features such as hedges or stream corridors; large areas of scrub or woodland; mature trees; etc.) through scheme-specific routing studies;
- The works programme and requirements for each measure will be determined at the earliest opportunity to allow investigation schemes, surveys and mitigation to be appropriately scheduled and to provide sufficient time for consultations with NRW;
- Night-time working, or working around dusk / dawn, should be avoided to reduce the likelihood of negative effects on nocturnal species;
- Any lighting required (either temporary or permanent) will be designed with an ecologist to ensure that potential 'displacement' effects on nocturnal animals, particularly SAC bat species, are avoided;
- All compounds / pipe stores etc. will be sited, fenced or otherwise arranged to prevent vulnerable SAC species from accessing them;
- All materials will be stored away from commuting routes / foraging areas that may be used by species that are European site interest features;

- All excavations will have ramps or battered ends to prevent species becoming trapped; and
- Pipe-caps must be installed overnight to prevent species entering and becoming trapped in any laid pipe-work.

For those options where an EAR has been prepared, further species-specific mitigation measures and these will be further developed in consultation with NRW. The range of mitigation measures included in the EARs fall into three general activity types:

- measures to reduce impacts at source;
- measures to modify environmental conditions in the river/reservoir; and
- management of sensitive ecological species and communities.

The generic types of mitigation measures including the EARs that could be considered at the on-set of drought, during implementation of the drought permit/order and post-drought permit/order implementation are highlighted in **Table 4-23**.

Table 4-23: Potential Generic Mitigation Measures Considered to Address Adverse Effects of the Draft Drought Plan Supply-side Measures

| Type of Mitigation                                                                  | Typical implementation                                                                                                                                                                                                                                                                                                           | Considerations                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temporary reduction or cessation of the terms of the Drought Order                  | Water quality monitoring (typically dissolved oxygen and temperature) and/or fish distress monitoring may indicate a deterioration in aquatic conditions or an imminent risk of such. Can be implemented pre-emptively or reactively.                                                                                            | <ul style="list-style-type: none"> <li>Minimise duration, but avoid immediate recurrence.</li> <li>Data accumulation should aid decision taking</li> </ul>                                                                                                                                                                                     |
| Fish distress response – Aeration                                                   | Fish distress observations trigger deployment of in-river, aeration. Can be implemented pre-emptively or reactively.                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>Aeration deployment impact (sediment mobilisation, turbidity and d/s siltation; fish stressed by deployment)</li> <li>Permissions (e.g. FRAP; Accent; Access agreement and safety (riverbank and in-river)).</li> </ul>                                                                                 |
| Fish distress response – Fish rescue to refuge                                      | Fish distress observations trigger deployment of catch and transfer to refuge. Can be implemented pre-emptively or reactively, but most likely last-resort reaction, especially implementation to adult Salmonids.                                                                                                               | <ul style="list-style-type: none"> <li>Deployment stressful to fish, including morbidity risk</li> <li>Need pre-agreed betterment refuges</li> <li>Permissions (e.g. FRAP; Accent; Access agreement and safety (riverbank and in-river)).</li> </ul>                                                                                           |
| Provision of 'spate flows'                                                          | Where a storage can provide a release to the river, a temporary increase in flow can be important to flush sediment/pollutants from the system, revive ecology, or promote fish passage.                                                                                                                                         | <ul style="list-style-type: none"> <li>Release of an artificial 'spate flow' to be taken in dialogue with NRW.</li> <li>Take account of the prevailing conditions and forecasts, including considering the merits of encouraging fish migration during a drought.</li> <li>Compatibility with other water users, and alerting them.</li> </ul> |
| Reduce fish predation<br>Provide / protect refugia<br>Deploy scarers                | Consider (where feasible) a balanced and targeted reduction of predation risk on fish through refugia, (by artificial provision, or protecting existing natural ones), and /or the placement of piscivorous bird scarers (in areas remote from residential locations).                                                           | <ul style="list-style-type: none"> <li>The merits of each option and subsequent deployment would be subject to review on a case-by -case basis in consultation with NRW in respect of the balance to be struck.</li> </ul>                                                                                                                     |
| Reduce poaching                                                                     | Boots on the ground and/or camera deployment to deter or gather evidence against poachers.                                                                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>Conflict situation safety issues of 'boots on the ground' deployment.</li> </ul>                                                                                                                                                                                                                        |
| Reduce / manage cattle poaching of riverbanks                                       | Cattle poaching of the riverbank may pose localised water quality risks during drought. Improved permanent or temporary fencing arrangements, field management, and/or provision of water troughs can ease impacts and need for river access.                                                                                    | <ul style="list-style-type: none"> <li>The merits and subsequent deployment would be subject to review on a case-by -case basis in consultation with NRW in respect of the balance to be struck between the detrimental risk due drought and natural habitat benefits.</li> </ul>                                                              |
| Wastewater discharges <ul style="list-style-type: none"> <li>Undertakers</li> </ul> | Sewerage Service companies can add due focus on drought risks within setting and managing planned maintenance and investment programmes for wastewater treatment works, outfall infrastructure and the sewerage networks. Likewise, Water Supply companies, for potential discharges from Water Treatment Works or source works. | <ul style="list-style-type: none"> <li>Specific projects or within-project stages may have particular risks or management opportunities relative to drought risk.</li> <li>Might improvements (e.g. treatment improvement investment) be beneficially brought forward.</li> </ul>                                                              |



| Type of Mitigation                                                                    | Typical implementation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Considerations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wastewater discharges <ul style="list-style-type: none"> <li>Third parties</li> </ul> | Engagement with third party dischargers may identify mutually beneficial management or improvement opportunities.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>Mutual benefit being important for water company to progress</li> <li>Otherwise, Third Party improvement requirements to be led by NRW/EA</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                  |
| Physical environmental improvement                                                    | <p>In some cases, permanent or temporary environmental improvement may be possible and appropriate with respect to water quality or quantity improvements. Option may include:-</p> <ul style="list-style-type: none"> <li>Wider catchment or local riparian land-management</li> <li>In-river works, such as channel narrowing for pool-riffle habitat, flow velocity, or to secure water across bifurcations or to side channels</li> <li>Temporary (e.g. inflatable) weir for water depth retention or maintenance of 'head' to side channels at risk of isolation</li> <li>In-river works to improve refugia</li> <li>Tree planting (or artificial approaches) for river shade improvement</li> <li>Fish passage improvement e.g. fish pass structure improvements</li> <li>Functionality improvement at flow / water level 'control' structures</li> <li>Siltation or obstruction clearance for navigation or other recreational use resilience</li> </ul> | <ul style="list-style-type: none"> <li>Physical improvement proposals will require permissions</li> <li>Regulatory and stakeholder engagement and agreements essential</li> <li>Technical design, and preparatory planning may be substantial for physical improvement measures. E.g., field survey requirements</li> <li>Potential flow and velocity impacts may require substantive hydraulics assessment and/or modelling.</li> <li>Most in-river work is likely to be undesirable during drought, so implementation planning should err to pre-drought, permanent improvement</li> </ul> |
| Alternative flow support                                                              | In some cases, it may be possible to use other sources of water to provide support flows to surface water courses (or water volume to ponds or lakes or stranded side channels) to temporarily mitigate the impact of the drought                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>Compatibility with the receiving water quality will be important</li> <li>Assessment and management of INNS transfer risk</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Provision of alternative water supplies                                               | If there is a risk of derogation of other abstractors, it may be possible to provide alternative water supplies, or to improve their ability to capture water from their source. E.g., lowering pumps in boreholes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>Physical improvements will likely require permissions.</li> <li>Provision is otherwise provided in legislation<sup>191</sup> for compensation to be agreed with the abstractor.</li> </ul>                                                                                                                                                                                                                                                                                                                                                            |

<sup>191</sup> Schedule 1 of the Water Resources Act (WRA) 1991

#### 4.13.2 Scheme Design and Planning

All measures will be subject to project-level environmental assessment in the EARs that would accompany Drought Permit and Drought Order applications, which will include assessments of their potential to affect European sites during their construction or operation. These assessments will consider or identify (inter alia):

- opportunities for avoiding potential effects on European sites through design (e.g. alternative pipeline routes; micro-siting; etc);
- construction measures that need to be incorporated into scheme design and or planning to avoid or mitigate potential effects - for example, ensuring that sufficient space is available for pollution prevention measures to be installed, such as sediment traps; and
- operational regimes required to ensure no adverse effects occur (e.g. compensation releases - although note that these measures can only be identified through detailed investigation schemes).

#### 4.13.3 Pollution Prevention

The habitats of European sites are most likely to be affected indirectly, through construction-site derived pollutants, rather than through direct encroachment. There is a substantial body of general construction good-practice which is applicable to all of the proposed measures and can be relied on (at this level) to prevent significant or adverse effects on a European site occurring as a result of construction site-derived pollutants. The following guidance documents detail the current industry best-practices in construction that are relevant to the proposed schemes:

- NRW, SEPA & NIEA, Guidance for Pollution Prevention<sup>192</sup> (GPPs) (which have replaced the previous Pollution Prevention Guidelines (PPGs)):
  - GPP1: Understanding Your Environmental Responsibilities - Good Environmental Practices (June 2021);
  - GPP5: Works and maintenance in or near water (February 2018);
  - GPP6: Working at construction and demolition sites (April 2023);
  - GPP21: Pollution incident response planning (June 2021); and
  - GPP22: Dealing with spills (October 2018).
  - Venables R. et al. (2000) Environmental Handbook for Building and Civil Engineering Projects. 2nd Edition. Construction Industry Research and Information Association (CIRIA), London.

The best-practice procedures and measures detailed in these documents will be followed for all construction works derived from the draft Drought Plan as a minimum standard, unless scheme-specific investigations identify additional measures and / or more appropriate non-standard approaches for dealing with potential site-derived pollutants.

#### 4.13.4 Effects on Water

As noted above, the EARs prepared for the supply-side measures have identified potential mitigation measures where adverse impacts on flows and water quality are predicted. These will be further developed in consultation with NRW.

#### 4.13.5 Effects on Human Health and Social and Economic Well-being

Construction activities should be undertaken so as to minimise short term adverse effects on recreational areas, such as footpaths, and on landscape and biodiversity. Noise, traffic disruption and visual impacts should also be considered. DCWW and its contractors are enrolled in the Considerate Constructors Scheme, a voluntary scheme which commits those contractors in the Scheme to be considerate and good neighbours, as well as clean, respectful, safe, environmentally conscious, responsible and accountable. Care should also be taken during construction regarding the potential for contaminants such as silt, concrete or fuel oil to pollute water courses via surface run off. This can be mitigated by undertaking all construction activities in accordance with relevant best practice pollution prevention guidance.

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<sup>192</sup> Available at: <https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/> [Accessed November 2024]

To maximise economic benefits in the DCWW area, it is recommended that, where possible, work is carried out by local firms and contractors or by those with a policy for training and skills development that could help contribute to the local economy and meet employment needs.

#### **4.13.6 Effects on Climate Change and Resource Use**

Due to the temporary and remote nature of many of the supply-side measures, it is likely to be difficult to mitigate effects on climate change for those schemes which have operational energy requirements. Where temporary pumping or treatment infrastructure is located in rural or remote areas, it is likely that generators will be required. In such circumstances, it is unlikely to be possible to use on-site energy generation or renewable sources of energy. However, the use of low emission plant could be used where feasible.

Where significant raw materials are required for options, this can be mitigated by utilising recycled and locally sourced materials. Construction and operational wastes should also be reused/recycled where appropriate.

#### **4.13.7 Effects on Cultural Heritage and Landscape**

Supply-side measures could have a negative effect on landscape if new infrastructure is required, particularly where development cannot be located on previously developed land and/or where schemes are located within landscapes recognised for their importance and special qualities (National Parks and National Landscapes). In order to minimise such effects, new structures could be located close to existing structures or hedgerows and trees to provide some screening; however, due to the temporary nature of the draft Drought Plan measures, it is unlikely to be practicable to utilise local building styles or incorporate landscaping schemes (e.g. tree/ hedge planting).

The potential for adverse impacts of the settings of cultural heritage assets should be considered early in the design process and any adverse effects minimised, for example through micro-siting/alternative pipeline routes to avoid designated sites.

## 5. CONCLUSIONS AND NEXT STEPS

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### 5.1 SUMMARY

#### 5.1.1 The Draft Drought Plan

DCWW's draft Drought Plan has identified seven WRZs that are potentially vulnerable to drought risk. The draft Drought Plan includes five demand-side options and 20 supply-side options that could be implemented in the event of a drought to ensure the continued supply of potable water to its customers during periods of low rainfall when water resources are depleted whilst minimising any detrimental effects on the environment.

The measures set out for each WRZ within the draft Drought Plan are equally feasible in their own right, but they would not necessarily be implemented in combination. The selection of the option or options to be implemented would be determined by a number of factors including the nature and intensity of the drought, operational requirements, and also on the potential environmental impacts of the option in question (as informed by the SEA and HRA of the draft Drought Plan, and the EAR where applicable).

#### 5.1.2 The Effects of the Demand- and Supply-Side Options

The demand-side options have been assessed as generally having a smaller range of effects against the SEA objectives that comprise the assessment framework when compared to the supply-side options. This is because these options seek to reduce the demand for water from existing resources and do not result in any temporary increases in abstraction. There is potential for significant negative effects relating to the potential disruption caused by temporary and non-essential use bans in addition to the more extreme demand measures. These options would negatively impact the economic and social needs of the communities and businesses within the DCWW supply area.

In contrast to the demand-side options, there is a greater likelihood of significant effects arising from the construction and operation of supply-side options. A number of supply-side options will require additional temporary infrastructure to be constructed (temporary pumps, generators and above ground pipelines). Construction activities could lead to disturbance of habitat, effects on water quantity or quality and can lead to disturbance of local residents and communities (e.g. noise and vibration). The presence of new above ground infrastructure can also lead to effects on landscape, especially in sensitive locations such as National Landscapes and National Parks, although such effects will be localised, transient and reversible. Environmental effects are potentially greater where there are sensitive receptors that may be affected during construction (e.g. sites designated for nature conservation or landscape designations). The majority of options, however, do not require additional infrastructure and therefore have no effects during construction. These include options to reduce compensation flow from reservoirs and other options that utilise existing sources.

During operation, there is considerable variation in the significance of effects of the supply-side options. In general, options that generate larger yields have significant benefits (in terms of human health and socioeconomic wellbeing); however, they may also be associated with significant negative effects (in terms of effects on designated nature conservation sites (e.g. SACs and SSSIs) and fish species in particular. Options that require a reduction in compensation flows or temporary increases in abstraction could also have significant effects on water quantity and quality (where downstream flows are affected). Options that result in the temporary pumping of water over a kilometre or further, against the gradient, will require substantial quantities of energy and resources. All options will increase resilience to climate change.

There are a number of supply-side options that have been identified as having minor or neutral effects against the SEA objectives during operation. These options include those that make minor changes to existing abstraction licences.

#### 5.1.3 The Effects on the Wellbeing Goals and SMNR

The draft Drought Plan is likely to support the achievement of the majority of the well-being goals for Wales. This principally reflects the objective of the Plan and its associated measures to ensure the continuity of drinking water supplies to DCWW's customers during periods of drought. Through the implementation of the proposed measures, the draft Drought Plan will ensure the continued supply of potable water whilst minimising any detrimental effects on the environment. This will help protect and enhance the environment and promote the efficient use of water resources, making a long-term contribution to the well-being goals for Wales and the objective for SMNR.

## 5.2 CONSULTATION

The draft Drought Plan and other accompanying documents including this Environmental Report are being submitted to the Welsh Government with a request for publication. Following receipt of the direction to do so, DCWW are publishing the documents for an 8 week consultation, beginning the 10th of January 2025.

The consultation bodies, as well as the public, are invited to express their views on this Environmental Report and use it as a reference point to express their views on the draft Drought Plan.

Comments should be sent to [water.resources@dwrcymru.com](mailto:water.resources@dwrcymru.com)

## 5.3 NEXT STEPS

Following consultation, DCWW will prepare a Statement of Response to the representations received during the consultation period setting out how and why the draft Drought Plan has or has not been revised to take account of the consultation responses. DCWW will send the revised documentation to the Welsh Government for confirmation that all representations have been appropriately accounted for.

Following further direction from the Welsh Government, DCWW will publish the final Drought Plan and implement it accordingly. In conjunction with publishing the final Drought Plan, DCWW will also issue a Post Adoption Statement. This will set out the results of the consultation and SEA process and the extent to which the findings of the SEA have been accommodated in the published Drought Plan.

## 5.4 HOW THE ENVIRONMENTAL EFFECTS WILL BE CONSIDERED GOING FORWARD

Once the draft Drought Plan has been agreed, the options within the Drought Plan may need to be implemented through specific projects in the event of a drought. Where options require a Drought Permit or Drought Order, DCWW will have to apply to Natural Resources Wales or the Welsh Government. As part of this process, DCWW will have to include an EAR with each application describing the expected environmental effects of the proposal. As part of the preparation of the draft Drought Plan, 'shelf ready' EARs have been prepared for all the supply-side options and these would be updated for submission. Where necessary, these include Appropriate Assessments, addressing the requirements of the Habitats Regulations

## 5.5 MONITORING THE EFFECTS OF THE DROUGHT PLAN

DCWW will continue to develop its final Drought Plan in consultation with stakeholders. Subject to the approval of Welsh Ministers, DCWW expects to publish the final Drought Plan before the end of 2025.

If the Drought Plan is implemented and specific options deployed within a WRZ, its effects on the environment and people will need to be taken into account. In this regard, it is a requirement of the SEA Regulations to establish how the significant effects of the Drought Plan will be monitored. Monitoring can help to answer questions such as:

- Were the SEA predictions of effects accurate?
- Are mitigation measures performing as well as expected?
- Are there any adverse effects? Are these within acceptable limits, or is remedial action desirable?

Drought Plans encompass a basket of measures that will only be implemented if and when required because of the unpredictable occurrence of a drought event, and thus the actual impact of the plan over its life is subject to very significant uncertainties.

DCWW's draft Drought Plan includes a range of possible measures to allow DCWW to respond to a particular drought in the most appropriate way. It is difficult to predict in advance which and how many of the measures will be required to respond to a particular drought event. Correspondingly, it is therefore difficult to prescribe monitoring for the effects of the Drought Plan as a whole, and more appropriate to consider monitoring for drought options with significant environmental effects should these options be implemented during an actual drought.

As described in Section 1.3, EARs have been prepared for supply-side options requiring a drought permit or order. The EARs include detailed Environmental Monitoring and Mitigation Plans (EMPs) which have been developed in accordance with NRW drought plan guidance and include recommendations for baseline, pre-drought, during drought and post-drought monitoring to reduce any uncertainty in the environmental assessments and to ensure application readiness with respect to the escalation of monitoring as a drought may develop. The monitoring requirements will be assessed in more detail through this process. The EMPs are available in Appendix C for each EAR. In the event of a drought requiring the implementation of drought option(s), DCWW will review the requirement for environmental monitoring in consultation with NRW.

DCWW expects to monitor the effects of the Drought Plan alongside the other impacts of its operations, and as such, is likely to rely on existing sources of information that are collected either by DCWW or by other relevant organisations such as the NRW.

**Table 5-1** indicates some of the issues currently monitored or which could be monitored in future, and how they relate to the SEA objectives used in the SEA of the Drought Plan. This list is provisional and indicative only; monitoring proposals will be considered further and will be presented in the Post Adoption Statement.



Table 5-1: Potential Indicators for Monitoring Effects

| SEA Topic                               | Proposed Indicators                                                                                                                                                                                                                                                                     | Source of information                            | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Biodiversity, flora and fauna</b>    | Condition of specific protected sites (e.g. SACs, SPAs, SSSIs)<br>Biological monitoring (macroinvertebrates, macrophytes, fisheries, bird surveys, INNS records)                                                                                                                        | DCWW, Natural Resources Wales (NRW)              | Option-specific environmental monitoring plans (EMPs) set out detailed approaches for monitoring, based on the species and habitats potentially affected. This monitoring would be followed in the event of an option being implemented. Additionally, open communication between NRW and DCWW will generate up-to-date information and identification of any potential issues.                                                                                                                                                                                                                                                                                      |
| <b>Population and human health</b>      | Compliance with drinking water standards at customers' taps (%).<br><br>Compliance with Bathing Water quality standards<br>Number of nuisance-related complaints e.g. noise, dust.<br><br>Risk of severe restrictions in a drought<br><br>Number of visitors to recreational facilities | DCWW, NRW                                        | DCWW reports drinking water compliance data to Ofwat as part of the statutory returns process (Annual Performance Report) and to the Drinking Water Inspectorate.<br><br>NRW monitors the compliance of bathing waters and reports this annually.<br><br>DCWW record the number of complaints as part of their Annual Performance Report, this data could be reviewed in relation to nuisance-related complaints as a result of the Drought Plan.<br><br>DCWW report the risk of severe restrictions in a drought as part of the Annual Performance Report.<br><br>DCWW report the number of visitors to recreational facilities in their Annual Performance Report. |
| <b>Material assets and resource use</b> | Amount of recycled / reused materials used.<br><br>Proportion of waste sent to landfill.<br><br>Chemicals used in water supply.                                                                                                                                                         | DCWW (including contractors and sub-consultants) | Information on the use of recycled / reused materials should be held by construction managers and accounts (contractors / consultants accounts, waste or procurement records).<br><br>Information on waste disposal should be held by DCWW.<br><br>Information (quantities, composition) on chemical use should be held in accounts.                                                                                                                                                                                                                                                                                                                                 |
| <b>Water</b>                            | Water quality of surface waters and groundwater.<br><br>River flows, river levels, lake and reservoir levels                                                                                                                                                                            | DCWW, NRW                                        | Option-specific EMPs set out detailed approaches for monitoring water quality and quantity. This monitoring would be followed in the event of an option being implemented. Previous studies can also be used to inform monitoring and                                                                                                                                                                                                                                                                                                                                                                                                                                |

| SEA Topic                                       | Proposed Indicators                                                                                                                                                                      | Source of information                | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                 | <p>Leakage.</p> <p>Water saved through demand management/ water efficiency measures</p>                                                                                                  |                                      | <p>assessment. For example Review of Consents (RoC) documentation and any Drought Permit (DP) Environmental Assessments.</p> <p>DCWW report leakage data and demand savings to Ofwat as part of the annual returns process.</p>                                                                                                                                                                                                                                                                                                                   |
| <b><i>Soil, geology and land use</i></b>        | <p>Area of previously undeveloped land used during construction</p> <p>Condition of sites designated for geological interest (e.g. geological SSSIs) on water industry land holdings</p> | DCWW                                 | Option-specific EMPs set out detailed approaches for monitoring impacts to designated sites. This monitoring would be followed in the event of an option being implemented..                                                                                                                                                                                                                                                                                                                                                                      |
| <b><i>Air and climate</i></b>                   | <p>Quantity of Greenhouse gas emissions per megalitre of water supplied.</p> <p>Energy use used in the operation of options.</p> <p>Renewable energy generated or purchased.</p>         | DCWW, Air Quality monitoring network | <p>DCWW energy managers can use company data, and guidance from the UKWIR greenhouse gas workbook and BEIS (Department for Business, Energy &amp; Industrial Strategy) conversion factors to derive this information.</p> <p>DCWW should hold and record energy consumption data e.g. via accounts / invoices.</p> <p>DCWW should record renewable energy generation data, in addition to data on renewable energy purchased e.g. via accounts / invoices.</p> <p>DCWW report their energy self-sufficiency in the Annual Performance Report.</p> |
| <b><i>Archaeology and cultural heritage</i></b> | <p>Loss / damage or discovery / protection of cultural, historic and industrial heritage features.</p>                                                                                   | DCWW, CADW                           | Cadw's regional field monument wardens monitor the condition of all statutorily protected monuments on a five-year programme.                                                                                                                                                                                                                                                                                                                                                                                                                     |

| SEA Topic                                  | Proposed Indicators                                                    | Source of information | Commentary                                                                                       |
|--------------------------------------------|------------------------------------------------------------------------|-----------------------|--------------------------------------------------------------------------------------------------|
| <b><i>Landscape and visual amenity</i></b> | Loss / damage to landscape character and features of designated sites. | DCWW                  | DCWW could record the number and size of infrastructure built within designated landscape sites. |

# APPENDICES

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## APPENDIX A - QUALITY ASSURANCE CHECKLIST

The Quality Assurance checklist reproduced from ODPM guidance on SEA<sup>193</sup> is included here, indicating where this Scoping Report meets the requirements of SEA, and where further requirements will be addressed.

| Checklist item                                                                                                                                                 | Comments                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Objectives and context</b>                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                   |
| The plan's or programme's purpose and objectives are made clear.                                                                                               | The purpose of the Drought Plan is set out as part of Section 1 this Environmental Report.                                                                                                                                                                                                                                        |
| Environmental issues and constraints, including international and EC environmental protection objectives, are considered in developing objectives and targets. | Objectives of other relevant plans and programmes are set out in Section 2.2 and Appendix C.                                                                                                                                                                                                                                      |
| SEA objectives, where used, are clearly set out and linked to indicators and targets where appropriate.                                                        | SEA objectives are set out in Section 3, Table 3.1 of this Environmental Report.                                                                                                                                                                                                                                                  |
| Links with other related plans, programmes and policies are identified and explained.                                                                          | Links are identified in Section 2 and Appendix C of this Environmental Report.                                                                                                                                                                                                                                                    |
| Conflicts that exist between SEA objectives, between SEA and plan objectives and between SEA objectives and other plan objectives are identified and described | Conflicts between the SEA objectives and the options put forward by DCWW have been identified in the assessment matrices included in Appendix E.                                                                                                                                                                                  |
| <b>Scoping</b>                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                   |
| Consultation Bodies are consulted in appropriate ways and at appropriate times on the content and scope of the Environmental Report.                           | The Scoping Report was consulted upon and responses to this are included Appendix B.                                                                                                                                                                                                                                              |
| The assessment focuses on significant issues.                                                                                                                  | The scope of the assessment reflects the geographic extent of the DCWW area and provides a comprehensive approach to assessment (reflecting the large number of interactions dependent on the continued supply of water) which has enabled the subsequent assessment to determine which effects are considered to be significant. |
| Technical, procedural and other difficulties encountered are discussed; assumptions and uncertainties are made explicit.                                       | Difficulties and assumptions are set out in Section 2.3 of this Environmental Report.                                                                                                                                                                                                                                             |
| Reasons are given for eliminating issues from further consideration.                                                                                           | The scope of the assessment is set out in Section 3.2 .                                                                                                                                                                                                                                                                           |
| <b>Alternatives</b>                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                   |
| Realistic alternatives are considered for key issues, and the reasons for choosing them are documented.                                                        | All options were assessed as set out in Section 4 and Appendix E of this report.                                                                                                                                                                                                                                                  |
| Alternatives include 'do minimum' and/or 'business as usual' scenarios wherever relevant.                                                                      | A 'do minimum' and/or 'business as usual' scenario is not appropriate for the draft Drought Plan due to the need to provide sufficient water to customers.                                                                                                                                                                        |
| The environmental effects (both negative and positive) of each alternative are identified and compared.                                                        | This is included in Section 5 and Appendix E of this report.                                                                                                                                                                                                                                                                      |

<sup>193</sup> Office of the Deputy Prime Minister (2005). A Practical Guide to the Strategic Environmental Assessment Directive.

| Checklist item                                                                                                                                                                                                                                                                              | Comments                                                                                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inconsistencies between the alternatives and other relevant plans, programmes or policies are identified and explained.                                                                                                                                                                     | No inconsistencies were identified.                                                                                                                                                                                                                            |
| Reasons are given for selection or elimination of alternatives.                                                                                                                                                                                                                             | This is set out in Section 1.2 of this report.                                                                                                                                                                                                                 |
| <b>Baseline Information</b>                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                |
| Relevant aspects of the current state of the environment and their likely evolution without the plan or programme are described.                                                                                                                                                            | The current state of the environment and predicted future baseline is set out in Section 2.3 of this Environmental Report for each SEA topic.                                                                                                                  |
| Environmental characteristics of areas likely to be significantly affected are described, including areas wider than the physical boundary of the plan area where it is likely to be affected by the plan.                                                                                  | The environmental characteristics of the DCWW water supply area, and bordering regions where appropriate, are described in Section 2.3.                                                                                                                        |
| Difficulties such as deficiencies in information or methods are explained.                                                                                                                                                                                                                  | Difficulties and limitations are set out in Section 2.3.2 (and Section 3.3.3 for wider methodology).                                                                                                                                                           |
| <b>Prediction and evaluation of likely significant environmental effects</b>                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                |
| Effects identified include the types listed in the Directive (biodiversity, population, human health, fauna, flora, soil, water, air, climate factors, material assets, cultural heritage and landscape), as relevant; other likely environmental effects are also covered, as appropriate. | Potential effects have been set out in the Environmental Report in Section 4, and Appendix E.                                                                                                                                                                  |
| Both positive and negative effects are considered, and the duration of effects (short, medium or long-term) is addressed.                                                                                                                                                                   | The nature and duration of potential effects has been set out in the detailed assessment matrices contained in Appendix E of this report.                                                                                                                      |
| Likely secondary, cumulative and synergistic effects are identified where practicable.                                                                                                                                                                                                      | Information on secondary, cumulative and synergistic effects is set out in Section 4.10. Where identified, effects are also set out in the detailed assessment matrices contained in Appendix E of this report.                                                |
| Inter-relationships between effects are considered where practicable.                                                                                                                                                                                                                       | These effects have been considered within the assessments in Section 4 and Appendix E.                                                                                                                                                                         |
| The prediction and evaluation of effects makes use of relevant accepted standards, regulations, and thresholds.                                                                                                                                                                             | Relevant standards have been used where appropriate in undertaking the assessment.                                                                                                                                                                             |
| Methods used to evaluate the effects are described.                                                                                                                                                                                                                                         | Information on the methods used for evaluation of potential effects is included in Section 4 and in the detailed assessment matrices contained in Appendix E of this report. The definitions of significance used in the assessment are set out in Appendix D. |
| <b>Mitigation measures</b>                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                |
| Measures envisaged to prevent, reduce and offset any significant negative effects of implementing the plan or programme are indicated.                                                                                                                                                      | Mitigation measures for potential negative effects are set out in Section 4.12 and in the commentary to the matrices in Appendix E.                                                                                                                            |
| Issues to be taken into account in project consents are identified.                                                                                                                                                                                                                         | Issues to be taken into account in project consents are included in the appraisal matrices in Appendix E.                                                                                                                                                      |



| Checklist item                                                                                                                                                                                                                                                                                          | Comments                                                                                                                                                                                                                                                                                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Is clear and concise in its layout and presentation.                                                                                                                                                                                                                                                    | We believe the report is clear and where possible, concise.                                                                                                                                                                                                                                                     |
| Uses simple, clear language and avoids or explains technical terms.                                                                                                                                                                                                                                     | The Environmental Report uses simple, clear language, and explain technical terms, as appropriate.                                                                                                                                                                                                              |
| Uses maps and other illustrations where appropriate.                                                                                                                                                                                                                                                    | The Environmental Report has used maps and illustrations where appropriate.                                                                                                                                                                                                                                     |
| Explains the methodology used.                                                                                                                                                                                                                                                                          | The SEA methodology has been described in Section 3 of the Environmental Report.                                                                                                                                                                                                                                |
| Explains who was consulted and what methods of consultation were used.                                                                                                                                                                                                                                  | The consultation process is described in Section 1.9.                                                                                                                                                                                                                                                           |
| Identifies sources of information, including expert judgement and matters of opinion.                                                                                                                                                                                                                   | Sources of information have been detailed throughout the Environmental Report.                                                                                                                                                                                                                                  |
| Contains a non-technical summary covering the overall approach to the SEA, the objectives of the plan, the main options considered, and any changes to the plan resulting from the SEA.                                                                                                                 | The Environmental Report includes a Non-Technical Summary.                                                                                                                                                                                                                                                      |
| <b>Consultation</b>                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                 |
| The SEA is consulted on as an integral part of the plan-making process.                                                                                                                                                                                                                                 | The previously issued SEA Scoping Report was consulted upon and responses are included in this Environmental Report (see Appendix B).                                                                                                                                                                           |
| Consultation Bodies and the public likely to be affected by, or having an interest in, the plan or programme are consulted in ways and at times which give them an early and effective opportunity within appropriate time frames to express their opinions on the draft plan and Environmental Report. | The draft Drought Plan and accompanying documents including this Environmental Report are being submitted to the Welsh Government with a request for publication. Following receipt of the direction to do so, DCWW are publishing the documents for an 8 week consultation, beginning the 10th of January 2025 |
| <b>Decision-making and information on the decision</b>                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                 |
| The environmental report and the opinions of those consulted are taken into account in finalising and adopting the plan or programme.                                                                                                                                                                   | This Environmental Report has been amended to reflect the comments from the Scoping Report consultation.                                                                                                                                                                                                        |
| An explanation is given of how they have been taken into account.                                                                                                                                                                                                                                       | This Environmental Report has been amended to reflect the comments from the Scoping Report consultation. Appendix B presents how the comments have been considered and reflected in this Environmental Report.                                                                                                  |
| Reasons are given for choosing the plan or programme as adopted, in the light of other reasonable alternatives considered.                                                                                                                                                                              | This will be set out in the Post Adoption Statement to be issued along with the final Drought Plan.                                                                                                                                                                                                             |
| <b>Monitoring Measures</b>                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                 |
| Measures proposed for monitoring are clear, practicable and linked to the indicators and objectives used in the SEA.                                                                                                                                                                                    | Section 5.5 of this Environmental Report provides an overview of proposals for monitoring.                                                                                                                                                                                                                      |
| Monitoring is used, where appropriate, during implementation of the plan or programme to make good deficiencies in baseline information in the SEA.                                                                                                                                                     | Suggestions for monitoring have been made in Section 5.5 of this Environmental Report.                                                                                                                                                                                                                          |

| Checklist item                                                                                                                                          | Comments                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Monitoring enables unforeseen negative effects to be identified at an early stage. (These effects may include predictions which prove to be incorrect.) | Suggestions for monitoring have been made in Section 5.5 of this Environmental Report. |
| Proposals are made for action in response to significant negative effects.                                                                              | Mitigation methods are outlined in Section 4.12 of this Environmental Report.          |

## APPENDIX B – SCOPING CONSULTATION RESPONSES

| Ref. | Consultee | Response to SEA Scoping Report                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | DCWW/Ricardo Response                                                                                                |
|------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| 1    | NRW       | <p>Q1. Do you think that this scoping report sets out sufficient information to establish the context for the SEA of the draft Drought Plan in terms of the review of plans and programmes and baseline evidence and analysis?</p> <p>We welcome the information identified as part of the review of relevant plans and programmes as well as the baseline evidence and analysis presented within your scoping report. However, we consider that there is relevant plans and programmes alongside some baseline evidence that is out of date or has been omitted.</p> | Noted. Amendments have been made in the Environmental Report based on further comments provided and are noted below. |
| 2    | NRW       | <p>Q2. Do you agree that the key issues identified are relevant to the SEA of the draft Drought Plan?</p> <p>Whilst we agree that most of the key issues have been identified, we have suggested revisions to these to align with Welsh requirements. There are additional issues relevant to the SEA of your drought plan that should also be considered as part of your review.</p>                                                                                                                                                                                 | Noted. Amendments have been made in the Environmental Report based on further comments provided and are noted below. |
| 3    | NRW       | <p>Q3. Do you agree with the proposed approach to the SEA of the draft Drought Plan?</p> <p>We agree in general with your proposed approach, however, we have outlined some further considerations for your assessment framework within this response.</p>                                                                                                                                                                                                                                                                                                            | Noted. Amendments have been made in the Environmental Report based on further comments provided and are noted below. |
| 4    | NRW       | <p>Q4. Do you agree with the objectives/guide questions as presented and if not, do you have suggested amendments or additions that you believe should be included?</p> <p>We agree with most of your draft objectives for the SEA as set out in your proposed assessment framework (Table 3.1). There are, however, changes or additions that should be incorporated within your proposed assessment framework.</p>                                                                                                                                                  | Noted. Amendments have been made in the Environmental Report based on further comments provided and are noted below. |
| 5    | NRW       | <p>In the background and purpose of the report (section 1.1), it would be beneficial to acknowledge the SEA guidance that has been set out in our technical guidance for water company drought plans - <a href="https://naturalresources.wales/media/4hihubjr/water-company-drought-plan-technical-guidance.pdf">https://naturalresources.wales/media/4hihubjr/water-company-drought-plan-technical-guidance.pdf</a></p>                                                                                                                                              | Section 1.1 of the Environmental Report has been updated to acknowledge the technical guidance.                      |

| Ref. | Consultee | Response to SEA Scoping Report                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | DCWW/Ricardo Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6    | NRW       | We consider that some of the information within your scoping is out of date. You should update your SEA relating to your next drought plan period (2025-2030), using the most up to date information available.                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Noted. Amendments have been made in the Environmental Report based on further comments provided and are noted below.                                                                                                                                                                                                                                                                                                                                                                                            |
| 7    | NRW       | There is also a large number of European Union references that we now consider as out of date. For example, Section 1.2.3 states "The requirement for SEA of the Drought Plan is primarily due to the potential 'significant effects' of measures within the plan on sites designated under the Habitats Directive". This should be the Habitats Regulations.                                                                                                                                                                                                                                                                                                   | The sections of the Plans and Programmes review including Sections 2.2 and Appendix C have been reviewed and updated where necessary. However, some referencing to EU Directives remains as many Directives have been transposed into UK law or represent best practice and in some cases such as the SEA Regulations, the associated current widely used UK Government Guidance on SEA (The Practical Guide to the SEA Directive) refers to the SEA Directive and remains valid until the guidance is updated. |
| 8    | NRW       | In addition, there is no Habitats Regulation Assessment (HRA) completed for the next draft plan (2024) as yet, and as a result we assume the decision to complete an SEA is based on the HRA of the current drought plan, where you cannot rule out likely significant effects from some of the supply-side drought management options. You should be clear within the SEA what evidence you have used to base your screening on.                                                                                                                                                                                                                               | Comment noted. We have updated Section 1.2.3 to reflect the decision to undertake SEA was also based on the current drought plan and likelihood of similar options being included in this iteration.                                                                                                                                                                                                                                                                                                            |
| 9    | NRW       | It is also unclear how you have taken into consideration how previous monitoring results from previous drought plan has influenced this SEA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Where available, baseline monitoring data have been used to inform updated to the EARs. The information and conclusions contained within the updated EARs has been used to inform the SEA of the Drought Plan. This includes baseline environmental monitoring that was undertaken in relation to the Llwynon and Pontsticill options, which are the two most likely to be implemented.                                                                                                                         |
| 10   | NRW       | When setting out the policy (and legislative) requirements of the drought plan in section 2.2.1, you should ensure that you are referring to the latest version of the Welsh Government Guiding principles for 2024. A draft copy has been previously made available from the Welsh Government to you. Our technical guidance ( <a href="https://naturalresources.wales/media/4hihubjr/water-company-drought-plan-technical-guidance.pdf">https://naturalresources.wales/media/4hihubjr/water-company-drought-plan-technical-guidance.pdf</a> ) published in 2024 has reference to the relevant Welsh requirements where the plan is within or affecting Wales. | Section 2.2.1 has been updated to reference the most recent version of this document.                                                                                                                                                                                                                                                                                                                                                                                                                           |

| Ref. | Consultee | Response to SEA Scoping Report                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | DCWW/Ricardo Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11   | NRW       | Table 2.1 Biodiversity, Flora and Fauna refers to "Biodiversity net gain" which is only applicable to where your plan is within or affecting England. It is not a requirement of the Environment (Wales) Act in respect to your biodiversity and resilience of ecosystems duty for Wales. We have made comments on this under proposed framework later in this response.                                                                                                                                    | In Table 2.1 has been updated to better reflect this.                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 12   | NRW       | For flood risk, it is unclear where your policy objective 'Minimising flood risk and improving flood control infrastructure' comes from. The aim of the latest Welsh Government Strategy for flood and coastal erosion risk management (2020) is to reduce the risks to people and communities from flooding and coastal erosion in Wales. A key priority of the strategy is to deliver more natural interventions and catchment approaches to help improve environmental, social, and economic resilience. | Table 2.1 has been amended to reflect this comment.                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 13   | NRW       | It is also unclear how you have considered objectives and priorities relevant to drought plans within the Natural Resources Policy, Nature Recovery Action Plan and Area Statements. We are also unsure how Public Service Board Wellbeing Plans have been considered in respect to your policy objectives. Therefore, you should review Table 2.1 to ensure that your policy objectives are aligning with these.                                                                                           | These policies and plans have been identified in table 2.1 alongside the relevant topic area and objectives.                                                                                                                                                                                                                                                                                                                                                                                                    |
| 14   | NRW       | Table 2.1 also references Water Framework Directive under international. However, it does not list the Water Framework Directive Regulations (WFD Regulations) under national, which is what you should be referring to going forward. Therefore, you should review the relevance of referencing international plans and programmes that may no longer be relevant                                                                                                                                          | This reference has been updated.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 15   | NRW       | Figure 1.2, Table 2.1 and Appendix A includes specific references to Annex's and Articles of European Union (EU) Directives that have now been replaced by UK Regulations. We advise that you seek a legal opinion on whether it is appropriate to include EU references in your SEA and ensure that you have included the relevant UK Regulations.                                                                                                                                                         | The sections of the Plans and Programmes review including Sections 2.2 and Appendix C have been reviewed and updated where necessary. However, some referencing to EU Directives remains as many Directives have been transposed into UK law or represent best practice and in some cases such as the SEA Regulations, the associated current widely used UK Government Guidance on SEA (The Practical Guide to the SEA Directive) refers to the SEA Directive and remains valid until the guidance is updated. |

| Ref. | Consultee | Response to SEA Scoping Report                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | DCWW/Ricardo Response                                                                       |
|------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| 16   | NRW       | We acknowledge that there are some plans and programmes that may no longer be relevant, such as references to Environment Agency Wales and Countryside Council for Wales documents. There are also references to Welsh catchments in Appendix A that have been listed as Environment Agency that should be Natural Resources Wales, such as the catchment flood management plans.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | These references have been updated to align with the correct statutory consultation bodies. |
| 17   | NRW       | <p>In addition, we consider that there are omissions (or updated versions) of plans and programmes (Appendix A) that should be considered. There are also references to plans/programmes within baseline section that have not been identified in Table 2.1 or Appendix A, such as Area Statements. A list of the main plans and programmes are as follows:</p> <ul style="list-style-type: none"> <li>• The Environmental Permitting (England &amp; Wales) Regulations (2016) - <b>Appendix C</b></li> <li>• Welsh Government's Well-being of Wales National Indicators - <b>Well-being of Future Generations (Wales) Act</b></li> <li>• Waterwise - Water Efficiency Strategy for UK (2022)</li> <li>• Natural Resources Wales – Area Statements and Opportunity Catchments*</li> <li>• State of Natural Resources Report (2020)</li> <li>• National Strategy for Flood and Coastal Erosion Risk Management in Wales   GOV.WALES (2020)</li> <li>• Climate Change (Wales) Regulations 2021</li> <li>• Climate Change Wales Health Impact Assessment (2023) including water and supply</li> <li>• Wales SAC Rivers Project (see RBMP Annex's for more information)</li> <li>• Catchment scale improvements, River Restoration and Sustainable Fisheries opportunities in Wales (see RBMP Annex's for more information)</li> <li>• Welsh Government Capital Programme for Water are Metal Mines, Water Quality, Peatlands and Fisheries (see RBMP Annex's for more information)</li> <li>• Natural Resources Wales Corporate Plan</li> <li>• Valued and Resilient: The Welsh Government's Priorities for Areas of Outstanding Natural Beauty and National Parks</li> <li>• World Soil Charter - the 1982 United Nations Food and Agriculture Organisation World Soil Charter (revised in 2015) contains key principles and guidelines to benefit most soil stakeholders to identify the necessary policy and action approaches to guarantee global sustainable soil management</li> </ul> | These plans and programmes have been incorporated into the report.                          |



| Ref. | Consultee | Response to SEA Scoping Report                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | DCWW/Ricardo Response                                                              |
|------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
|      |           | <ul style="list-style-type: none"> <li>• Voluntary Guidelines for Sustainable Soil Management - the 2017 United Nations Food and Agriculture Organisation Voluntary Guidelines for Sustainable Soil Management are reference guidelines for technical and policy recommendations for sustainable soil management goals for a range of different stakeholders</li> <li>• National Peatland Action Programme. Natural Resources Wales / The National Peatland Action Programme</li> <li>• Planning Policy Wales (edition 12) Planning Policy Wales - Edition 12 (gov.wales)</li> <li>• Agriculture (Wales) Act 2023 Agriculture (Wales) Act 2023   GOV.WALES</li> <li>• Proposed Soil Policy Statement for Wales Soil management   GOV.WALES</li> <li>• Net Zero Wales Net Zero Wales   GOV.WALES</li> <li>• Sustainable Farming Scheme consultation Sustainable Farming Scheme   GOV.WALES</li> </ul> |                                                                                    |
| 18   | NRW       | We consider that you should amend section 3.2 to refer to your other environmental assessment documents of the drought plan e.g., the Habitats Regulations Assessment and WFD Regulations compliance assessment along with your environmental assessment reports (EAR).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Section 3.2 has been amended to reflect this comment.                              |
| 19   | NRW       | The proposed assessment framework within section 3.3 and SEA objectives set out in Table 3.1 should be revised to reflect the Welsh legislation and Sustainable Management of Natural Resources (SMNR) principles in respect the Welsh sites. To align with the well-being goals you have identified, you could also include the relevant national indicators that link to these. More information is available here: Wellbeing of Wales: national indicators   GOV.WALES                                                                                                                                                                                                                                                                                                                                                                                                                            | Noted. The table has been updated to incorporate the relevant national indicators. |
| 20   | NRW       | The structure should be amended to align with the ecosystem resilience framework (Ecosystem Resilience in a Nutshell 1: what is ecosystem resilience? (cyfoethnaturiol.cymru)).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Noted. The table has been updated to incorporate the relevant national indicators. |
| 21   | NRW       | Whilst we appreciate that you may consider that the impacts of your drought plan would be to freshwater environment receptors within the river catchments, there does need to be consideration for the wider impacts this may have to groundwater dependent terrestrial ecosystems (wetlands, peatlands, fens, etc) e.g., due to potential reduced baseflow to groundwater aquifers.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | This has been included as an indicator question.                                   |
| 22   | NRW       | We suggest that you include a new indicator question 'will it maintain and enhance ecosystem resilience in line with the requirements of the Environment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | This has been included as an indicator question.                                   |

| Ref. | Consultee | Response to SEA Scoping Report                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | DCWW/Ricardo Response                                                                                          |
|------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
|      |           | (Wales) Act' and add consideration of the Priority and Resilient Ecological Networks. More information is available here: resilient-ecological-networks-practitioner-guide.pdf (cyfoethnaturiol.cymru)                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                |
| 23   | NRW       | The biodiversity assessment should also consider a question relating to how your drought plan will affect the section 7 list under the Environment (Wales) Act.                                                                                                                                                                                                                                                                                                                                                                                        | This has been included as an indicator question.                                                               |
| 24   | NRW       | In addition, it is unclear what your proposed indicator question "Will it protect natural capital and ecosystems from natural capital?" means.                                                                                                                                                                                                                                                                                                                                                                                                         | Terminology in this section has been updated for clarity.                                                      |
| 25   | NRW       | Under population and human health, you should consider adding the following questions: <ul style="list-style-type: none"> <li>• Will the option affect public access to, or enjoyment of, local green/blue space?</li> <li>• Will the option impact on physical health and mental well-being by affecting opportunities for informal outdoor recreation?</li> </ul>                                                                                                                                                                                    | These have been included as indicator questions.                                                               |
| 26   | NRW       | You should consider adding under material assets objective - Protect Public Rights of Way (PRoW) and infrastructure, with an indicator question 'Will it protect PRoW and associated infrastructure?'. This will help demonstrate that you have considered the 'A Healthier Wales' well-being goal in respect to your assets.                                                                                                                                                                                                                          | This has been included as an indicator question.                                                               |
| 27   | NRW       | When taking into account WFD Regulations objectives, the following must be considered: <ul style="list-style-type: none"> <li>• deterioration in any status element</li> <li>• impact on any high status water body, or water body at high status for morphology</li> <li>• prevention of a water body or protected area from achieving the objective set out in the relevant River Basin Management Plan (RBMP)</li> <li>• any impact on mitigation measures necessary for the water body to achieve or maintain good ecological potential</li> </ul> | Noted. This has been taken into consideration during the assessments (EAR Appendix A)                          |
| 28   | NRW       | We recommend that you revise the water objective and indicator questions in respect to WFD Regulations accordingly to align with these objectives.                                                                                                                                                                                                                                                                                                                                                                                                     | Noted, the water objective and indicator questions have been revised to reflect the WFD Regulation objectives. |
| 29   | NRW       | We also consider that you should add an additional indicator question - Will it affect Drinking Water Protected Area safeguard zone?                                                                                                                                                                                                                                                                                                                                                                                                                   | This has been included as an indicator question.                                                               |

| Ref. | Consultee | Response to SEA Scoping Report                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | DCWW/Ricardo Response                                                                                                                                                                                                                                                                                                                                                                                    |
|------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 30   | NRW       | There is no mention of soil carbon and organic matter in the proposed assessment framework. Soil carbon is number 13 of the National Well-being Indicators (Wales). The uplands of Wales are a significant and important national carbon store. Therefore, the key issue in respect to soil and land use “the need to conserve and enhance soil quality and function (including carbon sequestration)” - you should include the maintenance of existing carbon stores and an increase where appropriate.                                                                               | This has been included as an indicator question.                                                                                                                                                                                                                                                                                                                                                         |
| 31   | NRW       | In addition, if the Best and Most Versatile (BMV) is being used as your assessment of land quality, how will the lack of predictive mapping splitting Grade 3 into Subgrade 3a and 3b be considered especially with cross border catchments for England and Wales? (see our comments later within this response).                                                                                                                                                                                                                                                                      | We note your comment, however, BMV is presented in the baseline to support understanding around land use in Wales. In the assessment, BMV would be used when assessing construction related impacts e.g. where permanent land-take would be required. Due to the temporary nature of drought options and minimal construction works required, it is unlikely any cross border impacts would be assessed. |
| 32   | NRW       | Section 3.2 clarifies that flood risk has been screened out of SEA, as stated below:<br>.....certain topics have been scoped out within the broader topic. These include flood risk as measures within the Drought Plan will be actioned during periods of drought and it is very unlikely to correspond to any flood risk events. Drought Plans are also a focussed set of measures specific to drought management and therefore not considered to effect accessibility to community facilities. This approach is consistent with that taken in the SEA for the current Drought Plan. | See below                                                                                                                                                                                                                                                                                                                                                                                                |
| 33   | NRW       | We did raise within our response to the last SEA in 2020, that we would expect you to seek to reduce and manage flood risk as well as consider long term resilience and adaptation. Therefore, you should ensure that flood risk is picked up under climate change key issues.                                                                                                                                                                                                                                                                                                         | The need to reduce and manage flood risk has been added as a key issue for climate change in the environmental baseline review.<br>An indicator question has also been added under SEA Objective 6.2:<br>“Will the option seek to reduce and manage flood risk?”                                                                                                                                         |
| 34   | NRW       | Regarding the landscape and visual amenity objective, you should add ‘the settings of National Parks and Areas of Outstanding Natural Beauty (AONBs)’. Due to the economic benefits arising from our Designated Landscapes, we also suggest adding ‘A Prosperous Wales’ to the list.                                                                                                                                                                                                                                                                                                   | The assessment framework has been updated to reflect this comment.                                                                                                                                                                                                                                                                                                                                       |

| Ref. | Consultee | Response to SEA Scoping Report                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | DCWW/Ricardo Response                                        |
|------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| 35   | NRW       | Section 1.5 and section 2.3.4.1 refers to the Natura 2000 network. This should be amended to reflect the legal requirements of the Habitats Regulations and the National Site Network, post EU exit.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Sections have been updated.                                  |
| 36   | NRW       | <p>With regards to the future baseline (section 2.3.4.2), whilst it has relevant information within it, we consider it to be slightly out of date and in the incorrect order. This section seems to be focussed on future policy impact and is organised in a way that it does not bring the global to region context together. You should consider amending the future baseline section as follows:</p> <ul style="list-style-type: none"> <li>• The third paragraph should be introduced upfront with an additional paragraph that follows, presenting the summary findings on biodiversity loss from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Global Assessment of biodiversity and ecosystem services. Therefore, the combination of the Global Biodiversity Framework (GBF) and IPBES provides the context for the nature recovery action.</li> <li>• Following the global perspective, the Biodiversity Deep Dive paragraph should be brought sooner into the section. We consider that the Deep Dive should be described as the transposing of the GBF and findings of the IPBES assessment into Welsh policy and legislation. Plans such as your drought plan should also be referring to the relevant sections of the Natural Resources Plan and Nature Recovery Action Plan (NRAP). Any questions on the Deep Dive being used to influence the refresh of the NRAP should be directed to the Welsh Government.</li> </ul> | Partially addressed                                          |
| 37   | NRW       | Note that the reference within this section to NRW's biodiversity plan (Vital Nature) should be removed as it is no longer valid. Our Corporate Plan contains the current approach and action that we are taking to tackle the joint nature and climate crises.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | This reference has been removed.                             |
| 38   | NRW       | Whilst we appreciate that you have looked at our biodiversity plan, we consider that your evidence base should be the aforementioned IPBES assessment and SoNNaR. SoNNaR appears to have been used in other places within the scoping document. However, has been omitted from the biodiversity chapter. Given your Section 6 biodiversity and resilience of ecosystems duty, we suggest that you use the information within SoNNaR Aim 2, Biodiversity assessment and INNS chapters, as well as the ecosystem and crosscutting chapters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Updated to refer to relevant SoNaRR reports within the text. |

| Ref. | Consultee | Response to SEA Scoping Report                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | DCWW/Ricardo Response                                                   |
|------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| 39   | NRW       | Within Section 2.4 (Table 2.13), you should add a new biodiversity, flora and fauna key issue regarding ecosystem resilience (see previous comments relating to ecosystem resilience earlier in this response).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | The table has been updated with the key issue.                          |
| 40   | NRW       | The baseline presented on water efficiency and leakage is from 2021-2022 and should be updated with the latest 2023-24 annual out-turn data. The future baseline demand information also does not appear to quite correspond with the latest water resources management plan (WRMP) table information you shared with us. You should align the baseline information with the latest data available.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | The baseline and demand data have been updated to reflect this comment. |
| 41   | NRW       | You should also acknowledge under section 2.3.6.1 baseline information, the recreational value of DCWW's landholding. This includes consideration for the Public Rights of Way (PRoW) network along with access infrastructure e.g., footbridges, gates and stiles, also cycle paths and permissive routes. The access opportunities in Wales are a significant wellbeing resource for residents and visitors, enabling access to our cherished landscapes and nature.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | This information is acknowledged in sections 2.3.6.1.                   |
| 42   | NRW       | The baseline information within section 2.3.7 is missing the level of detail presented in the previous SEA of your drought plan, such as there is no information on water availability. You should consider including an updated version of all relevant information that was in your previous SEA within this baseline section.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | The information has been added and updated.                             |
| 43   | NRW       | The information presented in Table 2.6 (section 2.3.7.1) is incorrect and is using the RBMP progress report for Wales covering 2009-2015 as the reference for the numbers of water bodies. The future baseline (section 2.3.7.2) for all Wales figures reported, is also out of date. You should use the most up to date RBMP data, which is available here: Water Watch Wales ( <a href="https://naturalresourceswales.gov.uk">naturalresourceswales.gov.uk</a> ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Sections have been updated.                                             |
| 44   | NRW       | The main reasons for water bodies not achieving good status or potential (RNAG's) should be updated to reflect the most up to date situation presented in the latest River Basin Management Plans. Further information is available here: Natural Resources Wales / Dee and Western Wales river basin management plans 2021-2027 ( <a href="https://naturalresources.wales/evidence-and-data/research-and-reports/water-reports/river-basin-management-plans/river-basin-management-plans-2021-2027/?lang=en">https://naturalresources.wales/evidence-and-data/research-and-reports/water-reports/river-basin-management-plans/river-basin-management-plans-2021-2027/?lang=en</a> ) and Natural Resources Wales / Severn River Basin Management Plan 2021-2027 ( <a href="https://naturalresources.wales/evidence-and-data/research-and-reports/water-reports/river-basin-management-plans/river-basin-management-plans-2021-2027/?lang=en">https://naturalresources.wales/evidence-and-data/research-and-reports/water-reports/river-basin-management-plans/river-basin-management-plans-2021-2027/?lang=en</a> ). | Information on water body status has been updated to reflect this.      |

| Ref. | Consultee | Response to SEA Scoping Report                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | DCWW/Ricardo Response                                                   |
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|      |           | reports/river-basin-management-plans/severn-river-basin-management-plan-2021-2027/?lang=en). Physical modification is one of the main reasons for not achieving good status/potential in Wales and this is missing from the list.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                         |
| 45   | NRW       | There also appears to be no mention of the Drinking Water Protected Areas (under the WFD Regulations) or DCWW's associated Safeguard Zones in the water section. You should consider adding these to the SEA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | This is now included as part of the assessment framework question list. |
| 46   | NRW       | We acknowledge that Bathing Waters (Protected Areas under WFD Regulations) are mentioned. The SEA scoping mentions that two bathing waters failed to meet the required standards and assessed as poor in 2023, Watch House Bay in Barry and Ogmore-By-Sea in Vale of Glamorgan. These were both new designations made by the Welsh Government for the 2023 bathing season.                                                                                                                                                                                                                                                                                                                                          | Updated with the additional information provided.                       |
| 47   | NRW       | You will have to consider the addition of a new inland Bathing Water on the River Wye has been designated by Welsh Government for the 2024 bathing season which should be included within this SEA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | This information has been included and noted.                           |
| 48   | NRW       | Section 2.3.7.2 also states that "the focus of the third cycle of the River Basin Management Plan (RBMP), 2021 – 2027, is to continue to protect and improve the quality of water in Wales particularly in the Dee and Western Wales river basins". We also focus on the Severn River Basin District in Wales. We have published the Western Wales RBMP and the Dee RBMP (in collaboration with the Environment Agency) and the Environment Agency publishes the Severn RBMP, in collaboration with NRW for the Welsh part of the RBMP.                                                                                                                                                                             | This information has been updated                                       |
| 49   | NRW       | Section 2.3.7.3 the water key issues, you should consider revising the first bullet to "taking account of Water Framework Directive (WFD) Regulations water body and Protected Area objectives" (see previous comments regarding your proposed assessment framework).                                                                                                                                                                                                                                                                                                                                                                                                                                               | Updated in line with the previous comment                               |
| 50   | NRW       | Section 2.3.7. As highlighted in our comments on setting policy objectives, you should refer to the latest National Strategy for Flood and Coastal Erosion Risk Management in Wales   GOV.WALES ( <a href="https://www.gov.wales/national-strategy-flood-and-coastal-erosion-risk-management-wales">https://www.gov.wales/national-strategy-flood-and-coastal-erosion-risk-management-wales</a> ) rather than the 2011 version for this section. In addition, the below text in the SEA scoping is also incorrect: <i>Local Flood Risk Maps for Wales are available online from NRW, which incorporates the Welsh Government's Development Advice Map, in addition to separate local flood mapping for England.</i> | Section 2.3.7 has been updated to reflect this comment.                 |



| Ref. | Consultee | Response to SEA Scoping Report                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | DCWW/Ricardo Response                                                                                 |
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|      |           | <p>The information on the flood maps should reference Flood Risk Assessment Wales. The Development Advice Maps Geocortex Viewer for HTML5 (cyfoethnaturiolcymru.gov.uk) are separate.</p> <p>There is also the flood map for planning - Flood Map for Planning (naturalresources.wales) which shows projected extents of flood risk taking account of climate change over the next century (which assumes that no defences are in place).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                       |
| 51   | NRW       | <p>There is no mention that soil is 'considered a finite resource as it takes a long time to form and this may have an impact on the assessment'.</p> <p>We welcome the use of the latest SoNaRR as a reference in respect to this section. You should also consider the soil evidence contained within the 'enclosed farmland' chapters of SoNaRR.</p> <p>We consider that there are other sources that could also be included, such as the Synthesis of Welsh Soil Evidence (gov.wales) and other reports from the Welsh Government's website: Soils policy evidence programme: all documents   GOV.WALES.</p> <p>Note that Figure 2.10 does not show the 400 soil types in Wales as indicated in the text and it is also not the National Soil Map of Wales, it is the 'Soilscapes' map which groups soils into functional groups.</p> <p>We also note that there is no reference for "Soil quality has deteriorated across all habitats apart from woodlands where there has been some improvement."</p> | Text around Figure 2.10 updated, and references amended.                                              |
| 52   | NRW       | <p>The Agricultural Land Classification (ALC) system was not developed by DEFRA. It was developed by the Ministry of Agriculture, Fisheries and Food (MAFF) in the 1960s. The subdivision of Grade 3 was agreed in 1976 and the current accepted ALC guidelines were published in 1988.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Text in the report has been updated to include more specific information provided in relation to ALC. |
| 53   | NRW       | <p>There are six grades for ALC, as Grade 3 is subdivided into Subgrade 3a and Subgrade 3b. You should further clarify within your SEA why Grades 1-3a are considered the Best and Most Versatile (BMV). As you have stated that these grades should be considered as such, these should be shown on Figure 2.11 or in Table 2.8.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Noted                                                                                                 |
| 54   | NRW       | <p>There is no mention of the Predictive ALC map for Wales in the text despite it being used for the map and table according to the references. We would expect this information to be included as it will affect the overall assessment of the soils</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | The report text has been updated to reflect this comment.                                             |

| Ref. | Consultee | Response to SEA Scoping Report                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | DCWW/Ricardo Response                                                                                 |
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|      |           | and land use objective in respect to “Will it avoid damage to and/or minimise the loss of best and most versatile agricultural land?”.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                       |
| 55   | NRW       | It is also unclear how will the effects on the England part of the supply area would be considered with the lack of predictive ALC mapping. We recommend that you consult Natural England and more information is available here: Natural England Access to Evidence - Likelihood of Best and Most Versatile Agricultural Land                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Noted                                                                                                 |
| 56   | NRW       | Within Table 2.8, it is unclear whether this is percentages showing the whole of Wales, and the whole of England of the supply area only. Please clarify and include the subdivision of Grade 3 for Wales.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Updated to show percentage within DCWW areas. Subdivision of ALC grade 3 has been included for Wales. |
| 57   | NRW       | Note that a low ALC grade does not necessarily mean a poor soil quality. You should reword the section in relation Table 2.8 where you have stated “Poor soil quality combined with...”.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Report text has been updated to amend this statement.                                                 |
| 58   | NRW       | <p>Regarding soil erosion you should re-visit this section as the wording does not fully reflect the evidence contained in SoNaRR2020 Land Use &amp; Soils.</p> <p>We also consider that the following information is missing from this section:</p> <ul style="list-style-type: none"> <li>• references to the Synthesis of Welsh Soil Evidence (gov.wales)</li> <li>• with regards to the soil formation rates in Wales, you should refer to this report for more information: Soil formation rates: scoping study   GOV.WALES</li> <li>• under “Arable Crops” Figure 2.12 – there are no notes/references to accompany this</li> <li>• irrigation has not been mentioned, has this been considered?</li> <li>• there is no information on the land uses within the supply area, which may be important across the different water resource zones (WRZ) such as Land Use, Land-Use Change and Forestry (LULUCF) data on land use, or from the Synthesis of Welsh Soil Evidence (gov.wales)</li> <li>• there is a strong focus on the ALC grade, however there are significant volumes of carbon stored in the upland areas of Wales where the ALC grades are lower, including peat and organo-mineral soils. This should be included in the baseline, as soil carbon and organic matter is one of the national well-being indicators for Wales.</li> </ul> <p>regarding you statement ‘predicted changes to the extent and distribution of the ALC grade and the best and most versatile (BMV) agricultural land will be largely</p> | This section of the environmental baseline review has been updated to reflect this comment.           |

| Ref. | Consultee | Response to SEA Scoping Report                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | DCWW/Ricardo Response                                                                                        |
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|      |           | driven by seasonal drought risk through changes in soil wetness and water availability.”, you should refer to the modelling outputs within this report<br>Agricultural land classification: projected effect of climate change   GOV.WALES                                                                                                                                                                                                                                                                                     |                                                                                                              |
| 59   | NRW       | Overall, there is little content relevant to woodlands, forestry and groundwater dependent terrestrial ecosystems within the SEA scoping.                                                                                                                                                                                                                                                                                                                                                                                      | Report content has been updated in response to this comment                                                  |
| 60   | NRW       | The increased drought risk will increase water stress in trees which can lead to reduced tree growth, crown dieback and tree mortality. Secondary impacts include an increased risk of windthrow and wildfire. Research is exploring the effects of drought on trees (Ovenden et al, 2022) (Xenakis et al, 2021) (Ovenden et al, 2021) (Ovenden et al, 2021).                                                                                                                                                                  | Drought risk and increased water stress have been referenced in the report in regards woodland and forestry. |
| 61   | NRW       | Wildfire management has many different elements however, this could include water spraying to control spread. A focus on maintaining potable supplies for your customers, could divert water available for other uses such as this. Therefore, the potential impacts should be considered within the SEA.                                                                                                                                                                                                                      | Noted                                                                                                        |
| 62   | NRW       | More widely, your discussion about land management practices (as opposed to land use) is very limited within section 2.3.8.1, including the changes that may result from the Sustainable Farming Scheme. More exploration of the some of the trade-off issues that are highlighted in SoNaRR would provide important background context to understanding water supply issues. Within this section, you should also include a reference to support the statement around “soil quality generally declining apart from woodland”. | Section 2.3.8.1 has been updated in regards land management.                                                 |
| 63   | NRW       | Note that within Appendix A, the description linked to the Woodland for Wales Strategy is incorrect – the Strategy does not afford protection to woodlands. It is simply a Strategy that promotes sustainable forest management to derive multiple ecosystem services and benefits.                                                                                                                                                                                                                                            | Wording has been altered within the report in reference to strategy to reflect this comment.                 |
| 64   | NRW       | There is a reference in 2.3.9.1 to ‘Climate Change Act 2008’ that ‘the UK has set itself a target of reducing greenhouse gas emissions by at least 80% compared to 1990 levels by 2050’ which has been revised to be net zero by 2050 in the UK. You also need to ensure that you have considered the targets as set out by the Welsh Government in respect to the Climate Change (Wales) Regulations 2021.                                                                                                                    | Report updated to reflect changes to the climate change act and Climate Change (Wales) Regs.                 |
| 65   | NRW       | The baseline information (section 2.3.11.1) refers to the eight Designated Landscapes Management Plans in paragraph four, and in the plans and                                                                                                                                                                                                                                                                                                                                                                                 | The report now makes reference to the proposed designated landscapes.                                        |

| Ref. | Consultee | Response to SEA Scoping Report                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | DCWW/Ricardo Response                                                                                      |
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|      |           | programmes (to provide more detail about their Special Qualities, priorities and management). This should include consideration of the proposed new National Park in north east Wales which is based on the Clwydian Range and Dee Valley AONB Wales's New National Park Proposal - Natural Resources Wales Citizen Space - Citizen Space (cyfoethnaturiol.cymru).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                            |
| 66   | NRW       | We note that Heritage Coast is not a statutory designated landscape and a reference is available here: Heritage Coasts   DataMapWales (gov.wales))                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | The report now refers to "of importance" rather than statutory designations in relation to Heritage Coast. |
| 67   | NRW       | Within this section you should acknowledge that Tranquillity is also a Special Quality of the Designated Landscapes. Dark Skies should also be included, which is a subset of Tranquillity, as a valued resource for biodiversity and wellbeing. A link is available here: Natural Resources Wales / New map casts light on Wales' dark skies.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | The report now refers to these characteristics in relation to designated landscapes.                       |
| 68   | CADW      | In general Cadw are happy but the paragraph about HERs on page 62 is incorrect. It currently states<br>"The DCWW area may contain a large number of undesignated cultural heritage assets, many of which may be of considerable significance (some of national quality, although not formally designated). Historic Environment Records (HERs) held by local authorities include both designated and undesignated assets".<br>It should be altered to<br>"The DCWW area may contain a large number of undesignated cultural heritage assets, many of which may be of considerable significance (some of national quality, although not formally designated). The statutory Historic Environment Record (HER) curated by Heneb: The Trust for Welsh Archaeology on behalf of The Welsh Ministers includes both designated and undesignated assets." | The section has been updated.                                                                              |

## APPENDIX C - REVIEW OF PLANS AND PROGRAMMES

**DISCLAIMER:** Every effort has been made to cover all policies, plans and programmes that may have an influence on the development of DCWW's Drought Plan, however, due to the evolving nature of the drought planning process not everything may have been covered here. We have also included many EU policies despite the UK's exit from the European Union as many of these have been transposed into UK law or represent best practice.

| International Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| Purpose of the Document, including Objectives and Targets relevant to the Drought Plan and SEA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Relationships and Influences on the Drought Plan and the SEA                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Conservation of Migratory Species (CMS) (1979) <i>The Bonn Convention on the Conservation of Migratory Species of Wild Animals</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <p>The Convention on the Conservation of Migratory Species of Wild Animals (also known as the Bonn Convention or CMS) is an intergovernmental treaty under the United Nations Environment Programme. The convention was signed in 1979 ratified in the UK in 1985.</p> <p>The convention aims to ensure contracting parties work together to conserve terrestrial, marine and avian migratory species and their habitats (on a global scale) by providing strict protection for endangered migratory species.</p> <p>Overarching objectives set for the Parties are:</p> <ul style="list-style-type: none"> <li>Should promote, co-operate in and support research relating to migratory species;</li> <li>Shall endeavour to provide immediate protection for migratory species;</li> <li>Shall endeavour to conclude Agreements covering the conservation and management of migratory species included in Appendix II.</li> </ul> <p>Setting targets is the responsibility of member states.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>The Drought Plan should take into account the habitats and species that have been identified under this directive, and should include provision for their protection, preservation and improvement.</p> <p>The SEA assessment framework should include biodiversity, incorporating the importance of conserving migratory species.</p>                                                                                             |
| <b>Council of Europe (1979) <i>The Convention on the Conservation of European Wildlife and Natural Habitats (The Bern Convention)</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <p>The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) was adopted in Bern, Switzerland in 1979, and came into force in 1982.</p> <p>The principal objectives are:</p> <ul style="list-style-type: none"> <li>To conserve wild flora and fauna and their natural habitats, especially those species and habitats whose conservation requires the co-operation of several States;</li> <li>To promote such co-operation. Particular emphasis is given to endangered and vulnerable species, including endangered and vulnerable migratory species;</li> <li>In order to achieve this the Convention imposes legal obligations on contracting parties, protecting over 500 wild plant species and more than 1000 wild animal species.</li> </ul> <p>Targets for Contracting Parties are:</p> <ul style="list-style-type: none"> <li>Promoting national policies for the conservation of wild flora, wild fauna and natural habitats, with particular attention to endangered and vulnerable species, especially endemic ones, and endangered habitats, in accordance with the provisions of this Convention;</li> <li>Undertaking in its planning and development policies, and in its measures against pollution, to have regard to the conservation of wild flora and fauna;</li> <li>Promoting education and disseminating general information on the need to conserve species of wild flora and fauna and their habitats.</li> </ul> | <p>The Drought Plan should take into account the habitats and species that have been identified under the Convention, and should include provision for the preservation, protection and improvement of the quality of the environment as appropriate.</p> <p>The SEA assessment framework should incorporate the conservation provisions of the Convention particularly the protection of wild flora, fauna and natural habitats.</p> |
| <b>Council of Europe (1985) <i>The Granada Convention for the Protection of the Architectural Heritage of Europe</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                       |

| International Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                           |
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| The main purpose of the convention is to reinforce and promote policies for the conservation and enhancement of Europe's heritage and to foster closer European co-operation in defence of heritage. Recognition that conservation of heritage is a cultural purpose and integrated conservation of heritage is an important factor in the improvement of quality of life.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | The SEA assessment framework should include an objective on the conservation and enhancement of heritage and decision making criteria on architectural heritage.                          |
| Council of Europe (1992) <i>Convention on the Protection of Archaeological Heritage (The Valetta Convention)</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                           |
| Agreement that the conservation and enhancement of an archaeological heritage is one of the goals of urban and regional planning policy. It is concerned in particular with the need for co-operation between archaeologists and planners to ensure optimum conservation of archaeological heritage.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | The Drought Plan should include an objective on the conservation and enhancement of heritage and decision making criteria on archaeological heritage.                                     |
| Council of Europe (2000) <i>The European Landscape Convention (The Florence Convention)</i> (became binding March 2007)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                           |
| <p>The European Landscape Convention was adopted on 20 October 2000 in Florence and came into force on 1 March 2004 (Council of Europe Treaty Series no. 176). It is open for signature by member states of the Council of Europe and for accession by the European Community and European non-member states. The UK Government signed the European Landscape Convention in 2006 and it became binding from March 2007.</p> <p>The aims of the Convention are to promote landscape protection, management and planning, and to organise European co-operation on landscape issues.</p> <p>Responsibility for implementation has been deferred to the signatories. Articles 5 (general measures) and 6 (specific measures) set out measures that the signatories will undertake, e.g. integrating landscape into policies with possible direct or indirect impact on landscape and to introduce instruments aimed at protecting, managing and/or planning the landscape.</p>                               | <p>The Drought Plan should take landscape into account.</p> <p>The SEA assessment framework should include landscape.</p>                                                                 |
| Council of Europe (2003) <i>European Soils Charter</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                           |
| Sets out common principles for protecting soils across the European Union area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>The Drought Plan should take soils into account.</p> <p>The SEA assessment framework should include an objective on soils.</p>                                                         |
| European Commission (1991) <i>The Nitrates Directive 91/676/EEC</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                           |
| <p>The Nitrates Directive is designed to reduce water pollution caused by nitrate from agriculture. The directive requires Defra and the Welsh Government to identify surface or ground waters that are, or could be high in nitrate from agricultural sources.</p> <p>Once a water body is identified as being high in nitrate all land draining to that water is designated a Nitrate Vulnerable Zone. Within these zones, farmers must observe an action programme of measures which include restricting the timing and application of fertilisers and manure, and keeping accurate records.</p>                                                                                                                                                                                                                                                                                                                                                                                                       | <p>The Drought Plan should be consistent with the aim to reduce water pollution caused by nitrate from agriculture.</p> <p>The SEA assessment framework should include water quality.</p> |
| European Commission (1991) <i>Urban Waste Water Treatment Directive 1991/271/EEC</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                           |
| <p>The aim of the Urban Waste Water Directive is to protect the environment from the adverse effects of waste water discharges. It sets out guidelines and legislation for the collection, treatment and discharge of urban waste water. The Directive was adopted by member states in May 1991 and is transposed into law in England and Wales by The Urban Waste Water Treatment (England &amp; Wales) Regulations 1994 (as amended*). The Regulations require that all significant discharges are treated to at least secondary treatment. They also set standards and deadlines for the provision of sewage systems, the treatment of sewage according to the size of the community served by the sewage treatment works and the sensitivity of receiving waters to their discharges.</p> <p>* The Regulations were amended in 2003 by The Urban Waste Water Treatment (England &amp; Wales) (Amendment) Regulations 2003.</p> <p>Responsibility for Implementation is deferred to member states.</p> | <p>The Drought Plan needs to consider the implication of the Directive.</p> <p>The SEA assessment framework should include water quality.</p>                                             |
| European Commission (1998) <i>Drinking Water Directive 1998/83/EC</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                           |



| International Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                            |
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| <p>The Drinking Water Directive (DWD) concerns the quality of water intended for human consumption. The objective of the DWD is to protect the health of the consumers in the EU and to make sure the water is wholesome and clean. To do this, the DWD sets standards for 48 (microbiological and chemical) parameters that can be found in drinking water. The parameters must be monitored and tested regularly. In principle WHO guidelines for drinking water are used as a basis for the standards in the DWD. While translating the DWD into their own national legislation (transposition of the DWD), the Member States of the European Union can include additional requirements e.g. regulate additional substances that are relevant within their territory or set higher standards. However, Member States are not allowed to set lower standards as the level of protection of human health should be the same within the whole EU. Member States have to monitor the quality of the drinking water supplied to their citizens and of the water used in the food production industry. Member States report at three yearly intervals the monitoring results to the European Commission.</p> <p>Standards constitute legal limits. Sets limits for microbiological and chemical parameters in drinking water. Also gives indicator parameters.</p>                                                                                                                                                                                                                       | <p>The Drought Plan should contain objectives for drinking water quality to ensure that limits are not exceeded.</p> <p>The SEA assessment framework should include drinking water quality.</p>                                                                                                                                                                            |
| European Commission (1999) <i>Directive on the Landfill of Waste 99/31/EC</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                            |
| <p>The Directive aims at reducing the amount of waste landfilled; promoting recycling and recovery; establishing high standards of landfill practice across the EU, and preventing the shipping of waste from one Country to another.</p> <p>The objective of the Directive is to prevent or reduce as far as possible negative effects on the environment (in particular on surface water, groundwater, soil, air and human health) from the land-filling of waste, by introducing stringent technical requirements for waste and landfills.</p> <p>The Directive requires the reduction of the amount of biodegradable municipal waste sent to landfill to 75% of the total generated in 1995 by 2006, 50% by 2009 and 35% by 2016.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <p>The Drought Plan should take the effects on waste to landfill into account.</p> <p>The SEA assessment should consider the effects on water, soil, air, human health and waste.</p>                                                                                                                                                                                      |
| European Commission (2000) <i>The Water Framework Directive 2000/60/EC</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                            |
| <p>The purpose of this Directive is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater and to achieve good qualitative and quantitative status of all water bodies (including marine waters up to one nautical mile from shore).. The framework aims to:</p> <ul style="list-style-type: none"> <li>Protect any further deterioration and enhance the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems;</li> <li>Promote sustainable water use based on a long-term protection of available water resources;</li> <li>Enhance protection and improvement of the aquatic environment, inter alia, through specific measures for the progressive reduction of discharges, emissions and losses of priority substances and the cessation or phasing-out of discharges, emissions and losses of the priority hazardous substances;</li> <li>Ensure the progressive reduction of pollution of groundwater and prevent its further pollution;</li> <li>Contribute to mitigating the effects of floods and droughts.</li> </ul> <p>The key objectives of the WFD are set out in Article 4 of the Directive. It requires Member States to use their River Basin Management Plans (RBMPs) and Programmes of Measures (PoMs) to protect and, where necessary, restore water bodies in order to reach good status, and to prevent deterioration. Good status means both good chemical and good ecological status.</p> | <p>The Drought Plan needs to consider the implication of the Directive in terms of sustainable water use, protection and improvement of the aquatic environment, reducing and preventing pollution and mitigating the effects of droughts.</p> <p>The SEA assessment framework should include water quality, water resources, sustainable water use, and biodiversity.</p> |
| European Commission (2001) <i>Directive on the Assessment of the Effects of Certain Plans and Programmes on the Environment (The SEA Directive) 2001/42/EC</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                            |
| <p>The objective of the SEA Directive is “to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view of contributing towards sustainable development”.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>Driver for SEA. Need to ensure all topics identified in the SEA Directive are considered within the scope of the assessment. Need to ensure that the subsequent Environmental Report meets the requirements of Annex I of the SEA Directive.</p>                                                                                                                        |

| International Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                 |
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| Throughout the course of the development of the plan, policy or programme, the aim of SEA is to identify the potential impact of options proposed in the plan in terms of their environmental, economic and social effects. If any adverse effects are identified, these options can then be avoided or proposals modified to manage or mitigate adverse effects.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                 |
| <b>European Commission (2001) National Emissions Ceiling Directive 2001/81/EC</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                 |
| <p>The Directive sets upper limits for each Member State for the total emissions in 2010 of the four pollutants responsible for acidification, eutrophication and ground-level ozone pollution (sulphur dioxide, nitrogen oxides, volatile organic compounds and ammonia). The UK 2010 ceilings for each of these pollutants were 585 kilotonnes, 1,167 kilotonnes, 1,200 kilotonnes and 297 kilotonnes, respectively.</p> <p>This was revised through the Thematic Strategy on Air Pollution and emissions ceilings for the four compounds and particulate matter (PM2.5) for up to 2020.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Consider the need for air quality to be included in the SEA framework.                                                                                                          |
| <b>European Commission (2002) The Environment Noise Directive (END) 2002/49/EC</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                 |
| <p>The END aims to “define a common approach intended to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to the exposure to environmental noise”. For that purpose several actions are to be progressively implemented. It furthermore aims at providing a basis the harmful effects, including annoyance, due to the exposure to environmental noise”. For that purpose several actions are to be progressively implemented. It furthermore aims at providing a basis for developing EU measures to reduce noise emitted by major sources, in particular road and rail vehicles and infrastructure, aircraft, outdoor and industrial equipment and mobile machinery.</p> <p>The underlying principles of the Directive are similar to those underpinning other overarching environment policies (such as air or waste), i.e.: Monitoring the environmental problem; by requiring competent authorities in Member States to draw up "strategic noise maps" for major roads, railways, airports and agglomerations, using harmonised noise indicators Lden (day-evening-night equivalent level) and Lnight (night equivalent level). These maps will be used to assess the number of people annoyed and sleep-disturbed respectively throughout Europe.</p> <ul style="list-style-type: none"> <li>Informing and consulting the public about noise exposure, its effects, and the measures considered to address noise, in line with the principles of the Aarhus Convention.</li> <li>Addressing local noise issues by requiring competent authorities to draw up action plans to reduce noise where necessary and maintain environmental noise quality where it is good. The directive does not set any limit value, nor does it prescribe the measures to be used in the action plans, which remain at the discretion of the competent authorities.</li> <li>Developing a long-term EU strategy, which includes objectives to reduce the number of people affected by noise in the longer term, and provides a framework for developing existing Community policy on noise reduction from source. With this respect, the Commission has made a declaration concerning the provisions laid down in article 1.2 with regard to the preparation of legislation relating to sources of noise.</li> </ul> <p>It is important to note, however, that the present Directive does not set binding limit values, nor does it prescribe the measures to be included in the action plans thus leaving those issues at the discretion of the competent authorities.</p> <p>The long-term exposure indicators supersede those in the 1999 World Health Organisation (WHO) Guidelines for Community Noise, which are now in the process of being updated in line with the Directive.</p> | <p>The Drought Plan will need to have regard to the requirements of the END.</p> <p>The SEA assessment framework should include for the protection against excessive noise.</p> |
| <b>European Commission (2002) Directive on the Energy Performance of Buildings 2002/91/EC</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                 |
| <p>The European Union Energy Performance of Buildings Directive was published in the Official Journal on the 4th January 2003. The overall objective of the Directive is to <i>promote the improvement of energy performance of buildings within the Community taking into account outdoor climate and local conditions as well as indoor climate requirements and cost effectiveness.</i></p> <p>The Directive highlights how the residential and tertiary sectors, the majority of which are based in buildings, accounts for 40% of EU energy consumption.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | The SEA should highlight any opportunities for new buildings associated with the Drought Plan to contribute to improved energy performance.                                     |

| International Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                    |
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| <b>European Commission (2004) <i>Environmental Liability Directive 2004/35/EC</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                    |
| The Directive establishes a framework for environmental liability based on the "polluter pays" principle, with a view to preventing and remedying environmental damage.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | The SEA should take account of the need to ensure that proposals in the Drought Plan avoids causing direct or indirect damage to the aquatic environment or contamination of land that creates a significant risk to human health. |
| <b>European Commission (2005) <i>Thematic Strategy on Air Pollution</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                    |
| This strategy supplements current legislation. It sets out objectives for air pollution and proposes measures for achieving them by 2020.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | The Drought Plan should be in accordance with the requirements of the strategy.<br>The SEA should take into account the need to improve air quality.                                                                               |
| <b>European Commission (2006) <i>Directive on animal health requirements for aquaculture animals and products thereof, and on the prevention and control of certain diseases in aquatic animals 2006/88/EC</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                    |
| <p>The Directive establishes:</p> <ul style="list-style-type: none"> <li>Animal health requirements for the placing on the market, importation and transit of aquaculture animals and their products;</li> <li>Minimum measures to prevent diseases in aquaculture animals;</li> <li>Minimum measures to be taken in response to suspected or established cases of certain diseases in aquatic animals.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | The SEA should take account of the need to maintain or enhance the quality of habitats and biodiversity.                                                                                                                           |
| <b>European Commission (2006) <i>Fresh Water Fish Directive 2006/44/EC</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                    |
| The Directive seeks to protect those fresh water bodies identified by Member States as waters suitable for sustaining fish populations. For those waters, it sets physical and chemical water quality objectives for salmonid waters and cyprinid waters. The Directive is designed to protect and improve the quality of rivers and lakes to encourage healthy fish populations.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | The SEA should take account of the need to promote the protection of river and lake water quality in order to maintain and develop suitable environments that will sustain fresh water fish populations.                           |
| <b>European Commission (2006) <i>Directive on the protection of groundwater against pollution and deterioration 2006/118EC</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                    |
| This Directive establishes specific measures as provided for in Article 17(1) and (2) of Directive 2000/60/EC (Water Framework Directive) in order to prevent and control groundwater pollution. This Directive is designed to prevent and combat groundwater pollution.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | The SEA should take account of the need to maintain, protect and improve water quality across the Drought Plan area.                                                                                                               |
| <b>European Commission (2006) <i>The Bathing Waters Directive 2006/7/EC</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                    |
| <p>The Bathing Waters Directive applies to surface waters that can be used for bathing except for swimming pools and spa pools, confined waters subject to treatment or used for therapeutic purposes and confined waters artificially separated from surface water and groundwater.</p> <p>The Directive is intended to:</p> <ul style="list-style-type: none"> <li>Be based on scientific knowledge on protecting health and the environment, as well as environmental management experience,</li> <li>Provide better and earlier information of citizens about quality of their bathing waters, including <a href="#">logos</a>,</li> <li>Move from simple sampling and monitoring of bathing waters to bathing quality management, and</li> <li>Be integrated into all other EU measures protecting the quality of all our waters (rivers, lakes, ground waters and coastal waters) through the <a href="#">Water Framework Directive</a>.</li> </ul> | <p>The Drought Plan will need to comply with set limits.</p> <p>The SEA assessment should include a guide question relating to the effects of options on the water quality at designated bathing waters.</p>                       |

| International Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                         |
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| <p>Two main parameters for analysis (intestinal enterococci and escherichia coli) are defined, instead of nineteen in the previous Directive. These parameters will be used to monitor and assess the quality of bathing waters and to classify them. Other parameters could be taken into account, such as the presence of cyanobacteria or microalgae.</p> <p>Member States must monitor the bathing waters every year. The monitoring calendar should provide for at least four samples to be taken per season (except where the season is very short or where there are special geographic constraints). The sampling interval should not be longer than one month. Upon the monitoring results gathered in four years, Member States should assess the bathing waters at the end of every season. A shorter period may be acceptable in some cases.</p> <p>The waters are classified according to their level of quality: poor, sufficient, good or excellent, linked to clear numerical quality standards for bacteriological quality. The category "sufficient" is the minimum quality threshold that all Member States should attain by the end of the 2015 season at the latest. Where water is classified as "poor", Member States should take certain management measures, e.g. banning bathing or posting a notice advising against it, providing information to the public, and suitable corrective measures.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                         |
| European Commission (2006) Sustainable Development Strategy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                         |
| <p>This document sets out a single coherent strategy outlining how the EU will meet long-standing commitments to sustainable development. This document presents a renewed version of the 2001 EU Sustainable Development Strategy (SDS). The aim of the SDS is to identify and develop actions to enable the EU to achieve continuous improvement of quality of life both for current and for future generations, through the creation of sustainable communities able to manage and use resources efficiently, and to tap the ecological and social innovation potential of the economy, ensuring prosperity, environmental protection and social cohesion.</p> <p>The key objectives of the strategy are:</p> <ul style="list-style-type: none"><li>• Environmental protection;</li><li>• Social equity and cohesion;</li><li>• Economic prosperity; and</li><li>• Meeting our international responsibilities.</li></ul> <p>The following key challenge areas include a number of targets in achieving their respective objectives:</p> <ul style="list-style-type: none"><li>• Climate Change and clean energy;</li><li>• Sustainable Transport;</li><li>• Sustainable consumption and production;</li><li>• Conservation and management of natural resources;</li><li>• Public Health;</li><li>• Social inclusion, demography and migration;</li><li>• Global poverty and sustainable development challenges.</li></ul> <p>The strategy was reviewed by the European Commission in 2009 (<i>Mainstreaming sustainable development into EU policies: 2009 Review of the European Union Strategy for Sustainable Development</i>), which underlined that the EU has mainstreamed sustainable development into a broad range of its policies in recent years, but that efforts still need to be intensified to address unsustainable trends such as energy consumption.</p> | <p>The Drought Plan should reflect all of the aims and targets set out in the Sustainable Development Strategy.</p> <p>The SEA assessment framework should reflect the core and supporting principles of the strategy including climate change, sustainable transport, public health, social inclusion and poverty.</p> |
| European Commission (2006) Mining Waste Directive 2006/21/EC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                         |
| <p>The Directive aims to prevent or reduce as far as possible any adverse effects on the environment, and any resultant risks to human health, brought about as a result of the management of waste from the extractive industries. The Directive covers the management of waste resulting</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <p>The Drought Plan should have regard to the aim to avoid negative effects from extractive waste.</p>                                                                                                                                                                                                                  |

| International Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                      |
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| directly from prospecting, extraction, treatment and storage of mineral resources and from quarrying. Operators are required to use Best Available Techniques in the management of waste facilities and the prevention of major accidents.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | The SEA assessment framework should include consideration of waste.                                                                                                                                  |
| <b>European Commission (2006) <i>Thematic Strategy for Soil Protection</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                      |
| <p>The <i>Thematic Strategy for Soil Protection</i> consists of a Communication from the Commission to the other European Institutions, a proposal for a framework Directive (a European law), and an Impact Assessment.</p> <p>It sets out an EU strategy for soil protection with an overall objective of the protection and sustainable use of soil, based on the following guiding principles:</p> <p>(1) Preventing further soil degradation and preserving its functions:</p> <ul style="list-style-type: none"> <li>when soil is used and its functions are exploited, action has to be taken on soil use and management patterns; and</li> <li>when soil acts as a sink/receptor of the effects of human activities or environmental phenomena, action has to be taken at source.</li> </ul> <p>(2) Restoring degraded soils to a level of functionality consistent at least with current and intended use, thus also considering the cost implications of the restoration of soil.</p> <p>The strategy proposes introducing a framework Directive setting out common principles for protecting soils across the EU, with Member States deciding how best to protect soil and how use it in a sustainable way on their own territory.</p> | <p>The Drought Plan should take potential effects on soil into account.</p> <p>The SEA assessment framework should include soils.</p>                                                                |
| <b>European Commission (2007) <i>Floods Directive 2007/60/EC</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                      |
| <p>The Floods Directive requires Member States to assess if all water courses and coast lines are at risk from flooding, to map the flood extent and assets and humans at risk in these areas and to take adequate and coordinated measures to reduce this flood risk.</p> <p>Member States are required to carry out a preliminary assessment by 2011 to identify the river basins and associated coastal areas at risk of flooding.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>The Drought Plan should take account of the flood risk management plans as they become available through the life of the plan.</p> <p>The SEA assessment framework should include flood risk.</p> |
| <b>European Commission (2007) <i>The Eel Directive 2007/1100/EC</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                      |
| The Eel Directive establishes measures for the recovery of the stock of European eel and requires member states to produce Eel management plans for each catchment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | The Drought Plan should ensure that there are no negative impacts on eel as a result of water resource management measures.                                                                          |
| <b>European Commission (2008) <i>Environmental Quality Standards Directive 2008/105/EC</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                      |
| <p>The Directive aims to control the concentration of certain substances which pose a risk to the aquatic environment. The 33 'priority substances' addressed by the Directive are defined by the Water Framework Directive (2000/60/EC), including cadmium, lead, mercury, nickel, benzene and polyaromatic hydrocarbons.</p> <p>The Directive sets thresholds of concentration that must not be exceeded, with limits to average values over a year to ensure long-term water quality and maximum allowable concentrations to limit short term pollution peaks. Member States must comply with the water quality standards and record an inventory of emissions and discharges of all substances in the Directive.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | The assessment framework should include assessment criteria relating to water quality.                                                                                                               |
| <b>European Union (2008) <i>Marine Strategy Framework Directive 2008/56/EC</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                      |
| The Directive sets out a framework for an ecosystem-based approach to the management of human activities which supports the sustainable use of marine goods and services. The overarching goal of the Directive is to achieve 'Good Environmental Status' (GES) by 2020 across Europe's marine environment. The Directive establishes four European Marine Regions, based on geographical and environmental criteria. The North East Atlantic Marine Region is divided into four subregions, with UK waters lying in two of these (the Greater North Sea and the Celtic Seas).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | The assessment framework should incorporate assessment criteria relating to the quality of the marine environment.                                                                                   |

| International Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                              |
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| <p>Each Member State is required to develop a marine strategy for their waters, in coordination with other countries within the same marine region or subregion. Marine strategies must be implemented to protect and conserve the marine environment, prevent its deterioration, and, where practicable, restore marine ecosystems in areas where they have been adversely affected. The marine strategies must contain:</p> <ul style="list-style-type: none"> <li>• An initial assessment of the current environmental status of that Member State's marine waters;</li> <li>• A determination of what Good Environmental Status means for those waters;</li> <li>• Targets and indicators designed to show whether a Member State is achieving GES;</li> <li>• A monitoring programme to measure progress towards GES;</li> <li>• A programme of measures designed to achieve or maintain GES.</li> </ul> <p>The Directive also requires Marine Protected Areas (MPAs) to be established to support the achievement of GES.</p>                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                              |
| European Commission (2008) <i>Ambient Air Quality and Cleaner Air for Europe Directive 2008/50/EC Air Quality Framework Fourth Daughter Directive 2004/107/EC and previous directives (96/62/EC; 99/30/EC; 2000/69/EC &amp; 2002/3/EC)</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                              |
| <p>The Directive:</p> <ul style="list-style-type: none"> <li>• defines and establishes objectives for ambient air quality to avoid, prevent or reduce harmful effects on human health and the environment as a whole;</li> <li>• assesses the ambient air quality in Member States using common methods and criteria;</li> <li>• obtains information on ambient air quality in order to help combat air pollution and nuisance and to monitor long-term trends and improvements resulting from national and Community measures;</li> <li>• ensures that such information on ambient air quality is made available to the public;</li> <li>• seeks to maintain air quality where it is good and improving it in other cases; and</li> <li>• promotes increased cooperation between the Member States in reducing air pollution.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <p>The Drought Plan should contribute towards achieving air quality standards set out in the Directive.</p> <p>Consider the need for air quality to be included in the SEA framework.</p>                                                    |
| European Union (2008) <i>Directive on Waste (Directive 75/442/EEC, 2006/12/EC 2008/98/EC as amended)</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                              |
| <p>The essential objective of all provisions relating to waste management should be the protection of human health and the environment against harmful effects caused by the collection, transport, treatment, storage and tipping of waste. Some key objectives include:</p> <ul style="list-style-type: none"> <li>• The recovery of waste and the use of recovered materials as raw materials should be encouraged;</li> <li>• Member States should, in addition to taking responsible action to ensure the disposal and recovery of waste, take measures to restrict the production of waste;</li> <li>• It is important for the Community as a whole to become self-sufficient in waste disposal and desirable for Member States individually to aim at such self-sufficiency;</li> <li>• Waste management plans should be drawn up in the Member States;</li> <li>• Movements of waste should be reduced;</li> <li>• Ensure a high level of protection and effective control;</li> </ul> <p>Subject to certain conditions, and provided that they comply with environmental protection requirements, some establishments which process their waste themselves or carry out waste recovery may be exempted from permit requirements;</p> <p>That proportion of the costs not covered by the proceeds of treating the waste must be defrayed in accordance with the 'polluter pays' principle.</p> | <p>The Drought Plan should seek to ensure the protection of human health and the environment in relation to waste management.</p> <p>The SEA assessment should include objectives on the protection of human health and the environment.</p> |
| European Commission (2009) <i>Directive on the Conservation of Wild Birds 2009/147/EC (codified version of Council Directive 79/409/EEC as amended)</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                              |



## International Plans and Programmes

The Directive provides a framework for the conservation and management of, and human interactions with, wild birds in Europe. The main provisions of the Directive include:

- The maintenance of the populations of all wild bird species across their natural range (Article 2) with the encouragement of various activities to that end (Article 3).
- The identification and classification of Special Protection Areas (SPAs) for rare or vulnerable species listed in Annex I of the Directive, as well as for all regularly occurring migratory species, paying particular attention to the protection of wetlands of international importance (Article 4). (Together with Special Areas of Conservation designated under the Habitats Directive, SPAs form a network of European protected areas known as Natura 2000).
- The establishment of a general scheme of protection for all wild birds (Article 5).
- Restrictions on the sale and keeping of wild birds (Article 6).
- Specification of the conditions under which hunting and falconry can be undertaken (Article 7). (Huntable species are listed on Annex II of the Directive).
- Prohibition of large-scale non-selective means of bird killing (Article 8).
- Procedures under which Member States may derogate from the provisions of Articles 5-8 (Article 9) — that is, the conditions under which permission may be given for otherwise prohibited activities.
- Encouragement of certain forms of relevant research (Article 10 and Annex V).

Requirements to ensure that introduction of non-native birds do not threaten other biodiversity (Article 11).

The Drought Plan should seek to protect and enhance biodiversity, particularly designated sites.

The SEA assessment framework should include objectives, indicators and targets that cover biodiversity.

### European Commission (2009) *Promotion of the use of energy from renewable sources Directive 2009/28/EC*

This Directive establishes a common framework for the use of energy from renewable sources in order to limit greenhouse gas emissions and to promote cleaner transport. It encourages energy efficiency, energy consumption from renewable sources and the improvement of energy supply.

The Member States are to establish national action plans which set the share of energy from renewable sources consumed in transport, as well as in the production of electricity and heating, for 2020. These action plans must take into account the effects of other energy efficiency measures on final energy consumption (the higher the reduction in energy consumption, the less energy from renewable sources will be required to meet the target). These plans will also establish procedures for the reform of planning and pricing schemes and access to electricity networks, promoting energy from renewable sources.

Each Member State has a target calculated according to the share of energy from renewable sources in its gross final consumption for 2020. The UK is required to source 15% of energy needs from renewable sources, including biomass, hydro, wind and solar power by 2020. From 1 January 2017, biofuels and bioliquids share in emissions savings should be increased to 50%.

The Drought Plan should seek to contribute towards increasing the proportion of energy from renewable energy sources.

The SEA assessment framework should include consideration of use of energy from renewable energy sources.

### European Commission (2010) *Energy 2020 - A Strategy for Competitive, Sustainable and Secure Energy*

EU energy and climate goals have been incorporated into the Europe 2020 Strategy for smart, sustainable and inclusive growth. The energy strategy includes five priorities for Europe:

1. Achieving an energy-efficient Europe;
2. Building a truly pan-European integrated energy market;
3. Empowering consumers and achieving the highest level of safety and security;
4. Extending Europe's leadership in energy technology and innovation;

The assessment framework should include criteria relating to energy where appropriate

| International Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                   |
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| <p>5. Strengthening the external dimension of the EU energy market.</p> <p>Energy 2020 is part of Resource-Efficient Europe, one of the seven key initiatives of Europe 2020.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                   |
| European Commission (2010) <i>Europe 2020 - A Strategy for Smart, Sustainable and Inclusive Growth</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                   |
| <p>This Directive brings together the IPPC Directive (2008/1/EC) and six other Directives on titanium dioxide, VOCs and waste incineration, with the aim of reducing pollutant emissions. It covers industries with high polluting potential such as energy, production and processing of metals, minerals, chemicals, waste management and rearing of animals.</p> <p>It defines the obligations to be met by industrial activities with a major pollution potential. This includes establishing a permit procedure, requirements for Best Available Techniques (BAT) and setting out requirements for discharges.</p>                                                                                                                                                                   | The assessment framework should include criteria that ensure the protection of the environment through the prevention of pollution.                                                                                               |
| European Union (2011) <i>EU Biodiversity Strategy to 2020 – towards implementation</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                   |
| <p>The European Commission has adopted an ambitious new strategy to halt the loss of biodiversity and ecosystem services in the EU by 2020. The strategy provides a framework for action over the next decade and covers the following key areas:</p> <p>Conserving and restoring nature;</p> <p>Maintaining and enhancing ecosystems and their services;</p> <p>Ensuring the sustainability of agriculture, forestry and fisheries;</p> <p>Combating invasive alien species;</p> <p>Addressing the global biodiversity crisis.</p>                                                                                                                                                                                                                                                       | <p>The Drought Plan should seek to protect and enhance biodiversity, particularly designated sites.</p> <p>The SEA assessment framework should include objectives, indicators and targets that cover biodiversity.</p>            |
| European Commission (2010) <i>Industrial Emissions Directive (integrated pollution prevention and control) 2010/75/EU</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                   |
| <p>This Directive brings together the IPPC Directive (2008/1/EC) and six other Directives on titanium dioxide, VOCs and waste incineration, with the aim of reducing pollutant emissions. It covers industries with high polluting potential such as energy, production and processing of metals, minerals, waste management and rearing of animals. It defines the obligations to be met by industrial activities with a major pollution potential. This includes establishing a permit procedure, requirements for Best Available Techniques (BAT) and setting out requirements for discharges.</p>                                                                                                                                                                                     | The SEA assessment framework should include criteria that ensure the protection of the environment through the prevention of pollution.                                                                                           |
| European Commission (2011) <i>Directives on Environmental Impact Assessment (Codified Directive 2011/92/EU and Revised Directive 2014/52/EU)</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                   |
| <p>The Directive, as enacted in 1985, amended, codified in 2011 and revised in 2014, sets out procedural requirements for certain development proposals to undergo an Environmental Impact Assessment (EIA) before being granted consent through the town and country planning or other consenting regimes. The UK Government is obliged to transpose the Revised EIA Directive by May 2017.</p>                                                                                                                                                                                                                                                                                                                                                                                          | The SEA should recognise that certain development proposals require an EIA to be undertaken, resulting in the identification of any likely significant environmental effects and associated mitigation measures.                  |
| European Commission (2011) <i>A Roadmap for Moving to a Competitive Low Carbon Economy in 2050</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                   |
| <p>The EU already has short term targets in place to reduce its emissions to 20% below 1990 levels by 2020; to increase the share of renewable energy to 20%; and to make a 20% improvement in energy efficiency. The 2050 roadmap looks beyond 2020 at longer term objectives.</p> <p>The roadmap suggests that by 2050, the EU should cut its emissions to 80% below 1990 levels through domestic reductions alone. It sets out milestones which form a cost-effective pathway to this goal - reductions of 40% by 2030 and 60% by 2040. It also shows how the main sectors responsible for Europe's emissions - power generation, industry, transport, buildings and construction, as well as agriculture - can make the transition to a low-carbon economy most cost-effectively.</p> | The assessment framework should recognise that certain development proposals require an EIA to be undertaken, resulting in the identification of any likely significant environmental effects and associated mitigation measures. |

| International Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                 |
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| European Commission (2012) <i>Energy Efficiency Directive 2012/27/EU as amended by Directive (EU) 2018/2002</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                 |
| <p>The Directive establishes a set of binding measures to help the EU reach its 20% energy efficiency target by 2020. Under the Directive, all EU countries are required to use energy more efficiently at all stages of the energy chain from its production to final consumption.</p> <p>Specific measures relate to:</p> <ul style="list-style-type: none"><li>• energy distributors achieving 1.5% energy savings per year through energy efficiency measures;</li><li>• improving the efficiency of heating systems, installing double glazed windows or insulating roofs;</li><li>• purchasing energy efficient buildings, products and services, and performing energy efficient renovations;</li><li>• access to data on consumption;</li><li>• large companies to audit energy consumption (implemented in the UK through the Energy Savings Opportunity Scheme Regulations 2014);</li><li>• national incentives for SMEs to undergo energy audits; and</li><li>• monitoring efficiency levels in new energy generation capacities.</li></ul> <p>The new amending Directive on Energy Efficiency (2018/2002) was agreed to update the policy framework to 2030 and beyond.</p> <p>The key element of the amended directive is a headline energy efficiency target for 2030 of at least 32.5%. The target, to be achieved collectively across the EU, is set relative to the 2007 modelling projections for 2030.</p> <p>In absolute terms, this means that EU energy consumption should be no more than 1273 Mtoe (million tonnes of equivalent) of primary energy and/or no more than 956 Mtoe of final energy. After the UK no longer applies EU law (following its withdrawal from the EU), the equivalent target should be no more than 1128 Mtoe of primary energy and no more than 846 Mtoe of final energy.</p> <p>The directive allows for a possible upward revision in the target in 2023, in case of substantial cost reductions due to economic or technological developments. It also includes an extension to the energy savings obligation in end use, introduced in the 2012 directive. Under the amending directive, EU countries will have to achieve new energy savings of 0.8% each year of final energy consumption for the 2021-2030 period</p> <p>Other elements in the amended directive include:</p> <ul style="list-style-type: none"><li>• stronger rules on metering and billing of thermal energy by giving consumers - especially those in multi-apartment building with collective heating systems – clearer rights to receive more frequent and more useful information on their energy consumption, also enabling them to better understand and control their heating bills</li><li>• requiring Member States to have in place transparent, publicly available national rules on the allocation of the cost of heating, cooling and hot water consumption in multi-apartment and multi-purpose buildings with collective systems for such services</li><li>• monitoring efficiency levels in new energy generation capacities</li><li>• updated primary energy factor (PEF) for electricity generation of 2.1 (down from the current 2.5)</li><li>• a general review of the Energy Efficiency Directive (required by 2024).</li></ul> | <p>The Drought Plan should seek to contribute towards targets for energy efficiency.</p> <p>The SEA assessment framework should include consideration of energy consumption and efficiency.</p> |
| European Commission (2014) <i>Seventh Environmental Action Programme to 2020 ‘Living well, within the limits of our planet’</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                 |

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| <p>The seventh Environmental Action Programme defines environmental priority objectives to be achieved by the EU up to 2020. As part of the programme, the EU aims to protect natural capital; promote resource-efficient and low-carbon growth; and safeguard health and wellbeing linked to pollutants, chemicals and climate change. The nine objectives and actions set out in the programme are:</p> <ul style="list-style-type: none"> <li>• to protect, conserve and enhance the Union's natural capital;</li> <li>• to turn the Union into a resource-efficient, green, and competitive low-carbon economy;</li> <li>• to safeguard the Union's citizens from environment-related pressures and risks to health and wellbeing;</li> <li>• to maximise the benefits of the Union's environment legislation by improving implementation;</li> <li>• to increase knowledge about the environment and widen the evidence base for policy;</li> <li>• to secure investment for environment and climate policy and account for the environmental costs of any societal activities;</li> <li>• to better integrate environmental concerns into other policy areas and ensure coherence when creating new policy;</li> <li>• to make the Union's cities more sustainable; and</li> <li>• to help the Union address international environmental and climate challenges more effectively.</li> </ul> | <p>The assessment framework should, where relevant, reflect the objectives of the programme.</p>                                                                                                                                                                  |
| European Commission (2014) <i>The EU Regulation on invasive alien (non-native) species 1143/2014/EU</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                   |
| <p>This Regulation seeks to address the problem of invasive alien species in a comprehensive manner so as to protect native biodiversity and ecosystem services, as well as to minimize and mitigate the human health or economic impacts that these species can have.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>The SEA assessment framework should include guide questions relating to invasive species.</p>                                                                                                                                                                  |
| European Commission (2013) <i>Strategy on Adaptation to Climate Change</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                   |
| <p>The EU strategy aims to make Europe more climate-resilient by adapting to the changing climate. It aims to provide a coherent approach to enhance preparedness and capacity to respond to the impacts of climate change. The three key objectives of the strategy are:</p> <ul style="list-style-type: none"> <li>• Promoting action by Member States – encouraging Member States to adopt adaptation strategies and provide funding to boost capacity;</li> <li>• 'Climate-proofing' action at EU level – promoting adaptation in vulnerable sectors such as agriculture and fisheries; and</li> <li>• Better informed decision-making – addressing gaps in knowledge and improving the European information sharing platform, Climate-ADAPT.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <p>The assessment framework should include criteria relating to climate resilience.</p>                                                                                                                                                                           |
| European Commission (2014) <i>A Policy Framework for Climate and Energy in the Period from 2020 to 2030</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                   |
| <p>The 2030 climate and energy framework was adopted in 2014 and builds on the 2020 targets. It sets three key targets for 2030:</p> <ul style="list-style-type: none"> <li>• at least 40% cuts in greenhouse gas emissions (from 1990 levels);</li> <li>• at least 27% share for renewable energy; and</li> <li>• at least 27% improvement in energy efficiency.</li> </ul> <p>The greenhouse gas emissions and renewable energy targets are binding.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>The Drought Plan should support longer term targets for reducing greenhouse gas emissions, increasing renewable energy and energy efficiency.</p> <p>The SEA assessment framework should include the consideration of energy and greenhouse gas emissions.</p> |
| European Commission (2015) <i>'Closing the loop - An EU Action Plan for the Circular Economy' policy package</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                   |

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| This document sets out actions to implement the European Commission's long term vision of significantly reducing waste landfilling and increasing recycling.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | The SEA should consider opportunities for the Drought Plan to contribute/enable the circular economy.                                                                                                                                                        |
| <b>European Commission (2016) <i>National Emissions reduction Commitments (NEC) Directive 2016/2284/EU</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                              |
| <p>The National Emission reduction Commitments Directive sets national emission reduction commitments for Member States and the EU for five important air pollutants: nitrogen oxides (NOx), non-methane volatile organic compounds (NMVOCs), sulphur dioxide (SO<sub>2</sub>), ammonia (NH<sub>3</sub>) and fine particulate matter (PM<sub>2.5</sub>).</p> <p>The NEC Directive highlights the importance of Member States regularly reporting air pollutant emission inventories for assessing progress in reducing air pollution in the EU and for ascertaining whether Member States are in compliance with their commitments.</p> <p>The directive introduces a number of reporting requirements for Member States. These include annual information on emissions of a number of pollutants:</p> <ul style="list-style-type: none"> <li>the five main air pollutants NO<sub>x</sub>, NMVOCs, SO<sub>2</sub>, NH<sub>3</sub> and PM<sub>2.5</sub> as well as carbon monoxide (CO);</li> <li>in addition to PM<sub>2.5</sub>, also PM<sub>10</sub> particulate matter and, if available, black carbon (BC) and total suspended particulate matter (TSP);</li> <li>heavy metals cadmium (Cd), lead (Pb) and mercury (Hg) and, if available, the additional heavy metals arsenic, chromium, copper, nickel, selenium and zinc;</li> </ul> <p>persistent organic pollutants (POPs) including selected polycyclic aromatic hydrocarbons (PAHs), dioxins and furans, polychlorinated biphenyls (PCBs) and hexachlorobenzene (HCB).</p> | <p>The Drought Plan should seek to reduce the emissions of the pollutants listed under the directive, where possible.</p> <p>The SEA assessment framework should include an objective and guide questions relating to air pollution/pollutant emissions.</p> |
| <b>European Commission (2020) <i>Biodiversity strategy for 2030</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                              |
| <p>The EU's biodiversity strategy for 2030 is a comprehensive, ambitious and long-term plan to protect nature and reverse the degradation of ecosystems. The strategy aims to put Europe's biodiversity on a path to recovery by 2030, and contains specific actions and commitments. The strategy contains specific commitments and actions to be delivered by 2030.</p> <ul style="list-style-type: none"> <li>Establishing a larger EU-wide network of protected areas on land and at sea</li> <li>Launching an EU nature restoration plan</li> <li>Introducing measures to enable the necessary transformative change</li> <li>Introducing measures to tackle the global biodiversity challenge.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <p>The Drought Plan should seek to protect and enhance biodiversity, particularly designated sites. The SEA assessment framework should include objectives, indicators and targets that cover biodiversity</p>                                               |
| <b>European Commission (2021) <i>EU strategy on adaptation to climate change</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                              |
| <p>The strategy sets out how the European Union can adapt to the unavoidable impacts of climate change and become climate resilient by 2050. The Strategy has four principle objectives:</p> <ul style="list-style-type: none"> <li>to make adaptation smarter;</li> <li>to make adaption swifter;</li> <li>to make adaption more systemic, and;</li> <li>to step up international action on adaptation to climate change.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>The Drought Plan should seek to contribute towards climate change adaption.</p> <p>The SEA assessment framework should include an objective relating to climate change and consideration of climate change adaption.</p>                                  |
| <b>European Commission (2022) <i>Eighth Environmental Action Programme</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                              |
| <p>The 8th EAP anchors the Member States' and Parliament's commitment to environmental and climate action until 2030, guided by a long-term vision to 2050 of wellbeing for all, while staying within the planetary boundaries. The agreed 8th EAP has six priority objectives related to climate neutrality, climate adaptation, circular economy, zero pollution, protecting and restoring biodiversity, and reducing environmental and</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>The SEA assessment framework should, where relevant, reflect the objectives of the proposal for the programme.</p>                                                                                                                                        |

| International Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                    |
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| climate pressures related to production and consumption. In addition, the programme sets out an enabling framework and a monitoring framework to measure progress towards the required systemic change.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                    |
| ICOMOS (2011) <i>Guidance on Heritage Impact Assessments for Cultural World Heritage Properties</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                    |
| <p>This document provides guidance on the process of Commissioning Heritage Impact Assessments (HIAs) for World Heritage properties in order to evaluate effectively the impact of potential development on the Outstanding Universal Value (OUV) of properties. The guidance is addressed at managers, developers, consultants and decision-makers and is also intended to be relevant to the World Heritage Committee and States Parties. The concept of OUV underpins the whole World Heritage Convention and all activities associated with properties inscribed on the List.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | The SEA Framework should include an objective on the conservation and enhancement of heritage.                                                                                                                                                                                                                                     |
| IUCN (2013) <i>World Heritage Advice Note: Environmental Assessment</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                    |
| <p>This Advice Note provides States Parties and other stakeholders with guidance on how to identify, evaluate, avoid and mitigate potential impacts of development proposals on World Heritage values, before decisions are taken. It provides guidance on integrating natural World Heritage Sites within Environmental Assessments. It includes a set of World Heritage Impact Assessment Principles that can be applied to all types of environmental Assessments, a list of key questions to ask concerning World Heritage during the assessment as well as step-by-step guidance.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>The DP should seek to contribute towards the protection of World Heritage Sites.</p> <p>The SEA assessment framework should include objectives and guide questions relating to the conservation of World Heritage Sites. The SEA assessment should also reflect/incorporate the principles of the guidance, where relevant.</p> |
| UNESCO (1971) <i>Ramsar Convention on Wetlands of International Importance</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                    |
| <p>The Convention on Wetlands of International Importance was signed in Ramsar, Iran in 1971. It is an intergovernmental treaty which provides the framework for national action and international co-operation for the conservation and wise use of wetlands and their resources, as a means to achieving sustainable development throughout the world.</p> <p>The original emphasis was on the conservation and wise use of wetlands primarily to provide habitat for waterbirds, however over the years the Convention has broadened its scope to incorporate all aspects of wetland conservation and wise use, recognising wetlands as ecosystems that are extremely important for biodiversity conservation and for the well-being of human communities.</p> <p><i>'The Convention's mission is the conservation and wise use of all wetlands through local, regional and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world'</i> (Ramsar COP8, 2002).</p> <p>The Fourth Ramsar Strategic Plan 2016-2024 has been adopted to provide guidance on how efforts for implementing the Convention on Wetlands should be focussed. The strategy has three strategic goals and one operational goal:</p> <ul style="list-style-type: none"> <li>• Strategic Goal 1: Addressing the Drivers of Wetland Loss and Degradation</li> <li>• Strategic Goal 2: Effectively Conserving and Managing the Ramsar Site Network</li> <li>• Strategic Goal 3: Wisely Using All Wetlands</li> <li>• Operational Goal 1: Enhancing Implementation</li> </ul> <p>The plan also contains 19 targets which fall under each of the goals. Implementing each of these will also contribute to the achievement of the Sustainable Development Goals (SDGs) and targets. .</p> | <p>The Drought Plan should ensure the protection and wise use of wetlands.</p> <p>The SEA assessment framework should incorporate the protection of wetland sites listed under the Ramsar convention.</p>                                                                                                                          |
| UNESCO (1972) <i>Convention Concerning the Protection of the World Cultural and Natural Heritage</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                    |
| <p>The Convention defines the kind of natural or cultural sites which can be considered for inscription on the World Heritage List. In addition to this, countries are required to:</p> <ul style="list-style-type: none"> <li>• Ensure that measures are taken for the protection, conservation and presentation of cultural and natural heritage</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | The assessment framework should include an objective on heritage and archaeological issues.                                                                                                                                                                                                                                        |



| International Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                     |
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| <ul style="list-style-type: none"> <li>• Adopt a general policy that gives cultural and natural heritage a function in the life of the community</li> <li>• Integrate the protection of heritage into comprehensive planning programmes</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                     |
| United Nations (1992) Convention on Biological Diversity (The Rio Convention)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                     |
| <p>The Convention on Biodiversity called for the development and enforcement of national strategies and associated action plans to identify, conserve and protect existing biological diversity, and to enhance it wherever possible. In the UK, the UK Biodiversity Action Plan was then established to conserve and enhance biodiversity in the UK through the use of Habitats and Species Action Plans to help the most threatened species and habitats to recover and to contribute to the conservation of global biodiversity.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | The assessment framework should include protection and enhancement of biodiversity.                                                                                                                                                                                                                                                                 |
| United Nations (1997) The Kyoto Protocol to the UN Framework Convention on Climate Change                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                     |
| <p>The Kyoto Protocol was adopted in Kyoto, Japan, on 11 December 1997 and entered into force on 16 February 2005. It is an international agreement linked to the United Nations Framework Convention on Climate Change. The major feature of the Kyoto Protocol is that it sets binding targets for industrialized countries for reducing greenhouse gas (GHG) emissions.</p> <p>This was the latest version against 1990 levels in the first commitment period (2008 to 2012). The Protocol is planned to be extended to 2020 (the Kyoto second commitment period), pending ratification of the Doha Agreement.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <p>The Drought Plan should aim to reduce greenhouse gas emissions.</p> <p>The SEA assessment framework should include objectives/guide questions related to reducing greenhouse gas emissions.</p>                                                                                                                                                  |
| United Nations Economic Commission for Europe (1998), Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (The Aarhus Convention)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                     |
| <p>To contribute to the protection of present and future generations to live in an environment adequate to his or her health and well-being. This will be achieved through each Party subject to the convention guaranteeing the rights of access to information, public participation in decision-making, and access to justice in environmental matters in accordance with the provisions of this Convention.</p> <p>To establish and maintain a clear, transparent and consistent framework to implement the provisions of this Convention. This will be achieved through each Party taking the necessary legislative, regulatory and other measures, including measures to achieve compatibility between the provisions implementing the information, public participation and access-to-justice provisions in this Convention, as well as proper enforcement measures.</p> <p>Responsibility for implementation is deferred to the member states.</p>                                                                                                                                                                                                           | <p>The development of the Drought Plan needs to be a transparent process.</p> <p>SEA should show a strong sense of safeguarding the lives of future generations and ensure that enough time is provided for consultation on the SEA documents in line with the Aarhus convention of establishing and maintaining a transparent clear framework.</p> |
| United Nations (2002) The World Summit on Sustainable Development                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                     |
| <p>The World Summit resulted in the Johannesburg Declaration on Sustainable Development and a Plan of Implementation. The declaration reaffirms principles already agreed upon at the Rio Earth Summit UNCED in 1992 and the UN Millennium Summit in 1999. It recognises that poverty eradication is a key condition for sustainable development and addresses issues such as cultural diversity, patterns of production and consumption, health issues, armed conflicts, the new dimension created by globalisation, gender issues and financing for development.</p> <p>The implementation plan sets out actions to achieve sustainable development such as poverty eradication, changing unsustainable patterns of consumption and production, protecting and managing the natural resource base of economic and social development, sustainable development in a globalizing world and health and sustainable development.</p> <p>Sustainable development in England is delivered through the sustainable development strategy, Securing the Future, and in Wales through One Wales: One Planet, The Sustainable Development Scheme of the Welsh Government.</p> | <p>The Drought Plan should promote sustainable development.</p> <p>The SEA should help to deliver sustainable development through the balanced assessment of the DP.</p>                                                                                                                                                                            |
| United Nations (2016) The Paris Agreement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                     |
| <p>The Paris Agreement was adopted at the 2015 Climate Change Conference, which aims to limit global temperature rises to 2 degrees. It was adopted by 195 countries at the Conference but will not come into force in 2020 unless ratified by at least 55 countries. The Agreement opened for signature in April 2016.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | The Drought Plan should aim to reduce greenhouse gas emissions.                                                                                                                                                                                                                                                                                     |

| International Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                           |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | The SEA assessment framework should include greenhouse gas emissions.                                                                                                                                                     |
| <b>United Nations Framework Convention on Climate Change (UNFCCC) (2011) <i>The Cancun Agreements</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                           |
| <p>The Cancun Agreements were a set of significant decisions by the international community to address the long-term challenge of climate change collectively and comprehensively over time, and to take concrete action immediately to speed up the global response to it.</p> <p>The agreements, reached on December 11 in Cancun, Mexico, at the 2010 United Nations Climate Change Conference, represented key steps forward in capturing plans to reduce greenhouse gas emissions, and to help developing nations protect themselves from climate impacts and build their own sustainable futures.</p> <p>The Cancun Agreements' main objectives cover:</p> <ul style="list-style-type: none"> <li>• Mitigation</li> <li>• Transparency of actions</li> <li>• Technology</li> <li>• Finance</li> <li>• Adaptation</li> <li>• Forests</li> <li>• Capacity building</li> </ul>                                                                                                                                                                                                                                                                                                 | <p>The Drought Plan should aim to reduce greenhouse gas emissions and support climate change mitigation and adaption.</p> <p>The SEA assessment framework should include greenhouse gas emissions and climate change.</p> |
| <b>World Commission on Environment and Development (1987) <i>Our Common Future (The Brundtland Report)</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                           |
| <p>The Brundtland Report is concerned with the world's economy and its environment. The objective is to provide an expanding and sustainable economy while protecting a sustainable environment. The Report was a call by the United Nations:</p> <ul style="list-style-type: none"> <li>• to propose long-term environmental strategies for achieving sustainable development by the year 2000 and beyond;</li> <li>• to strengthen co-operation among developing countries and between countries at different stages of economic and social development to achieve common and mutually supportive objectives which take account of the interrelationships between people, resources, environment and development;</li> <li>• to consider ways and means by which the international community can deal more effectively with environment concerns; and</li> <li>• to help define shared perceptions of long-term environmental issues and the appropriate efforts needed to deal successfully with the problems of protecting and enhancing the environment, a long term agenda for action during the coming decades, and aspirational goals for the world community.</li> </ul> | The SEA and Drought Plan should seek to contribute to sustainable development.                                                                                                                                            |
| <b>World Health Organisation (2004) <i>Children's Environment and Health Action Plan for Europe</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                           |
| <p>The action plan aims to address the causes of environment-related diseases in children, including the state of the physical environment, socio-economic conditions and behaviour. Key actions include:</p> <ul style="list-style-type: none"> <li>• primary prevention, i.e. policies, programmes and plans aimed at improving the state of the physical environment (air, water, soil, noise), in particular through the integration of children's needs into housing, transport, infrastructure and planning;</li> <li>• equity, i.e. giving priority to protection of children at highest risk, and particularly of children who are neglected, abandoned, disabled, institutionalized or exploited, by improving access to preventive health and social protection services;</li> <li>• poverty reduction, i.e. policies addressing the multidimensional aspects of poverty among children;</li> </ul>                                                                                                                                                                                                                                                                     | The Drought Plan should have regard to the requirements of the Action Plan.                                                                                                                                               |

| International Plans and Programmes                                                                                                                                                                                                                                                                 |  |
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| <ul style="list-style-type: none"><li>health promotion, i.e. actions aimed at preventing and reducing exposures to environmental health hazards by adopting healthy lifestyles, achieving sustainable consumption patterns and helping to create healthy and enabling human settlements.</li></ul> |  |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                           |
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| Purpose of the Document, including Objectives and Targets relevant to the Drought Plan and SEA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Relationships and Influences on the Drought Plan and the SEA                                                                                                                                                              |
| <b>Area of Outstanding Natural Beauty Management Units (various) AONB Management Plans</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                           |
| <p>The following AONBs are present in the DCWW area:</p> <ul style="list-style-type: none"> <li>- Anglesey;</li> <li>- Clwydian Range;</li> <li>- Gower;</li> <li>- Llyn;</li> <li>- Wye Valley.</li> </ul> <p>The management plans for AONBs contain actions to ensure the protection and enhancement of the landscape.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>Draft Drought Plan Measures within AONBs should be consistent with the management plan.</p> <p>The SEA assessment framework should consider the effects of options on landscapes, including designated landscapes.</p> |
| <b>Defra (Various) Eel Management Plans</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                           |
| <p>Eel management plans describe the current status of Eel populations across river basin districts and assesses compliance with targets set out in EU Council Regs 110/2207.</p> <p>Relevant Eel Management Plans are set out below:</p> <ul style="list-style-type: none"> <li>- Eel Management Plan for Western Wales River Basin District</li> <li>- Eel Management Plan for Severn River Basin District;</li> <li>- Eel Management Plan for Dee River Basin District.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>The draft Drought Plan should take Eel management plans into account.</p>                                                                                                                                              |
| <b>Natural Resources Wales (various) Catchment Flood Management Plans</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                           |
| <p>Catchment Flood Management Plans (CFMPs) give an overview of the flood risk across each river catchment. They recommend ways of managing those risks now and over the next 50-100 years. CFMPs consider all types of inland flooding, from rivers, ground water, surface water and tidal flooding, but not flooding directly from the sea, (coastal flooding), which is covered in Shoreline Management Plans. They also take into account the likely impacts of climate change, the effects of how we use and manage the land, and how areas could be developed to meet our present day needs without compromising the ability of future generations to meet their own needs.</p> <p>Those CFMPs present in the DCWW area are:</p> <ul style="list-style-type: none"> <li>- Wye and Usk;</li> <li>- Eastern Valleys;</li> <li>- Taff and Ely;</li> <li>- Ogmore to Tawe (including Thaw and Cadoxton);</li> <li>- Loughor to Taf;</li> <li>- Pembrokeshire and Ceredigion Rivers;</li> <li>- North West Wales;</li> <li>- Conwy and Clwyd;</li> <li>- River Dee.</li> </ul> | <p>The draft Drought Plan should take CFMPs into account.</p> <p>The SEA should include a guide question relating to flood risk.</p>                                                                                      |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                   |
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| Environment Agency (various) <i>River Basin Management Plans</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                   |
| <p>River Basin Management Plans (RBMPs) set out how the water environment will be managed and provide a framework for more detailed decisions to be made. RBMPs set out a more integrated approach to river basin management based on the following principles:</p> <ul style="list-style-type: none"> <li>- Integrate and streamline plans and processes;</li> <li>- Set out a clear, transparent and accessible process of analysis and decision-making;</li> <li>- Focus at the river basin district level;</li> <li>- Work in partnership with other regulators;</li> <li>- Encourage active involvement of a broad cross-section of stakeholders;</li> <li>- Make use of the alternative objectives to deliver sustainable development;</li> <li>- Use Better Regulation principles and consider the cost-effectiveness of the full range of possible measures;</li> <li>- Seek to be even handed across different sectors of society and sectors of industry;</li> <li>- Seek to be even handed and transparent in the management of uncertainty;</li> <li>- Develop methodologies and refine analyses as more information becomes available.</li> <li>- RBMPs in the DCWW area are Severn, Western Wales and Dee.</li> </ul>                                                                                            | <p>The draft Drought Plan should reflect the broad objectives of these plans.</p> <p>The SEA objectives should reflect the need to manage water resources on a catchment basis in a sustainable manner.</p>       |
| Environment Agency, Natural Resources Wales and Natural Scotland (2016) <i>River Basin District Flood Risk Management Plans</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                   |
| <ul style="list-style-type: none"> <li>- Flood risk management plans (FRMP) explain the risk of flooding from rivers, the sea, surface water, groundwater and reservoirs, and set out how risk management authorities will work with communities to manage flood risk over the next six years.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <p>The draft Drought Plan should take FRMPs into account.</p> <p>The SEA should include a guide question relating to flood risk.</p>                                                                              |
| Environment Agency (2022) <i>Wye Waterway Plan 2023-2028</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                   |
| <p>The plan's vision is to develop and promote appropriate navigation and recreational activities for all waterway users, while protecting and enhancing the unique conservation status of the waterway. To achieve the vision the EA aim to:</p> <ul style="list-style-type: none"> <li>- protect, maintain and enhance the unique conservation status of the waterway; • manage, improve and enhance navigation opportunities for the waterway;</li> <li>- protect the interests of those navigating and using the principal rivers;</li> <li>- encourage the appropriate use and enjoyment of the waterway by walkers, anglers and other recreational users; • promote better access and information for canoeists, rafters and users of small craft; • contribute to enhanced biodiversity, heritage and landscape values of the waterway;</li> <li>- develop the health, economic and social benefits of navigation, to the advantage of everyone; • enable more people to enjoy the natural environment.</li> </ul> <p>The EA will achieve this through working in partnership across all sectors to enhance the quality of the waterway and the services it provides – for business, anglers, the boating community and other waterway users; meeting our conservation responsibilities to protect the environment.</p> | <p>Drought Plan measures in the Wye catchment should be consistent with the aims of the Wye Waterway Plan.</p> <p>The SEA assessment should consider the effects of options on recreational use of waterways.</p> |
| Natural Resources Wales (various) <i>Salmon Action Plans</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                   |
| <p>Salmon action plans have been produced for the following river catchments in Wales; Cleddau; Clwyd; Conwy; Dee; Dwyfor; River Dyfi; Dysynni; Glaslyn and Dwyrdd; Mawddach; Nevern; Ogmore; Ogwen; Rheidol; Taf; Taff and Ely; Tawe; Teifi; River Usk; River Wye.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p>The draft Drought Plan should consider the effect of options on salmon populations.</p>                                                                                                                        |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                          |
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| <p>The aim of the action plans is to ensure the objectives set out in the National Salmon Strategy are met. They set out what needs to be done to support and restore salmon populations.</p> <p>Individual targets are set out in each action plan</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p>The SEA assessment framework should include a guide question relating to the effects of options on fish.</p>                                                                                                                                                          |
| Local Biodiversity Action Plans (LBAPs), including Species and Habitats Action Plans (various)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                          |
| <p>There are 27 LBAPs for Wales and one for Herefordshire.</p> <p>Each Local Biodiversity Action Plan works on the basis of partnership to identify local priorities and to determine the contribution they can make to the delivery of the national Species and Habitat Action Plan targets. They include targets for increasing and enhancing biodiversity.</p> <p>Species Action Plans set objectives with regard specific species and set out proposed actions and targets along with which agency will be responsible for carrying them out.</p> <p>Habitat Action Plans sets objectives with regard specific UK habitats and sets out proposed actions targets along with which agency will be responsible for carrying them out.</p>                                    | <p>Draft Drought Plan measures should take into account LBAP objectives.</p> <p>The SEA assessment should consider effects of options on biodiversity and outline enhancement and mitigation opportunities where these are identified.</p>                               |
| Local Geodiversity Action Plans (LGAPs) (Various)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                          |
| <p>Local Geodiversity Action Plans (LGAPs) set out actions to conserve and enhance the geodiversity of a particular area. In general they aim to:</p> <ul style="list-style-type: none"> <li>• identify, conserve and enhance the best sites that represent the geological history of an area in a scientific, educational, recreational and cultural setting,</li> <li>• promote geological sites and make geo-conservation relevant to people,</li> <li>• provide a local geodiversity audit (an audit of sites and skills) and influence local planning policy.</li> </ul> <p>The following areas are within the DCWW area and have Local Geodiversity Action Plans:</p> <ul style="list-style-type: none"> <li>• Anglesey</li> <li>• <u>Clwydian Range AONB</u></li> </ul> | <p>The draft Drought Plan should seek to protect and enhance geodiversity.</p> <p>SEA objectives should reflect the need to conserve and, where possible, enhance geodiversity.</p>                                                                                      |
| Local Planning Authority (various) Land Use Plans                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                          |
| <p>The DCWW area covers a large number of Local Planning Authorities. These have been identified as: Conwy; Blaenau Gwent; Brecon Beacons National Park; Bridgend Caerphilly; Cardiff; Carmarthenshire; Ceredigion; Denbighshire; Flintshire; Gwynedd; Herefordshire; Merthyr Tydfil; Monmouthshire; Neath Port Talbot; Newport; Pembrokeshire; Pembrokeshire Coast National Park; Powys; Rhondda Cynon Taff; Snowdonia National Park; Swansea; Torfaen; Vale of Glamorgan; Wrexham; Ynys Mon.</p> <p>The main objectives of the existing and emerging Land Use Plans in these areas are related to the sustainable development of the area.</p>                                                                                                                               | <p>Draft Drought Plan measures should be consistent with the Land Use Plans of those local authorities that will be affected by the option.</p>                                                                                                                          |
| National Park Management Plans (various)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                          |
| <p>The following National Parks are present in the DCWW area:</p> <ul style="list-style-type: none"> <li>- Snowdonia;</li> <li>- Brecon Beacons;</li> <li>- Pembrokeshire Coast.</li> </ul> <p>The management plans for National Parks contain actions to ensure the protection and enhancement of the landscape and natural environment of these areas.</p>                                                                                                                                                                                                                                                                                                                                                                                                                   | <p>Draft Drought Plan measures within the National Parks should be consistent with the respective management plan.</p> <p>The SEA assessment framework should consider the effects of options on landscapes and the natural environment, including designated areas.</p> |
| Natural Resources Wales (Various) Catchment Abstraction Management (Licencing) Strategies (CAMS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                          |



| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                           |
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| <p>Catchment Abstraction Management Strategies (CAMS) to assess how much water is available for abstraction, and where. Therefore, highlighting where water abstraction licences can be granted.</p> <p>A water abstraction licence is required to remove more than 20 cubic metres (4,400 gallons) of water per day from a river or stream, reservoir, lake or pond, canal or spring. The strategies aim to meet the water needs of the environment and to allow water users to sustainably exploit any surplus.</p> <p>The strategies were updated in 2014 to use an improved method and which meets the requirements of the EU Water Framework Directive 2000/60/EC by applying a better understanding of how much water the environment needs. Within the DCWW area the following Catchment Abstraction Management Strategies (CAMS) are in place:</p> <ul style="list-style-type: none"><li>• River Wye CAMS;</li><li>• Thaw and Cadoxton CAMS;</li><li>• The Teifi and North Ceredigion CAMS;</li><li>• The Cleddau and Pembrokeshire Coastal Rivers CAMS;</li><li>• The Carmarthen Bay CAMS;</li><li>• The Swansea Bay CAMS;</li><li>• Anglesey Catchment CAMS;</li><li>• Clwyd Catchment CAMS;</li><li>• Conwy Catchment CAMS;</li><li>• River Dee CAMS;</li><li>• Llyn and Eryri CAMS;</li><li>• Meirionnydd CAMS;</li><li>• River Usk CAMS;</li></ul> <p>South East Valleys CAMS.</p> | <p>The draft drought plan should take the CAMS into account.</p> <p>The SEA assessment should consider the effects of options on the availability and sustainability of water supply.</p> |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                               |
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| Purpose of the Document, including Objectives and Targets relevant to the Drought Plan and SEA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Relationships and Influences on the Drought Plan and the SEA                                                                                                                                                                                                                                                                                                  |
| <b>Cadw, CCW and ICOMOS (UK) (International Council on Monuments and Sites) (2001) <i>Register of Landscapes of Historic Importance</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                               |
| <p>Cadw, the Countryside Council for Wales (CCW) and the International Council on Monuments and Sites (ICOMOS UK), has compiled a Register of Landscape of Historic Interest in Wales. The register identifies 58 landscapes of outstanding or special historic interest, which are considered to be the best examples of different types of historic landscapes in Wales.</p> <p>The Register provides information to decision makers and landscape managers, to help ensure that the historic character of the landscape is sustained, and that where change is contemplated, it is well-informed. It is accompanied by a good practice guide, which explains how the Register should be used in assessing the effect of major developments on the historic landscape.</p> <p>A guide to good practice on using the register was published in 2007 and remains in use.</p>                                                                                                                                                                                                                | <p>The Drought Plan should be developed with consideration of landscapes of historic interest.</p> <p>The SEA should include assessment criteria relating to protection and enhancement of the landscapes and seascapes, including those with historic interest features.</p>                                                                                 |
| <b>Canal and River Trust (2015) <i>Water Resources Strategy</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                               |
| <p>The Strategy sets out the Canal and River Trust's overarching vision and work plan for the next five years for how it intends to manage water resources across the inland waterway network that it manages. The strategy is focused on delivering long-term security of water supply for the Canal &amp; River Trust to achieve its vision of living waterways that transform places and enrich lives.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>The Drought Plan should take into consideration the potential impact on the supply of water to the inland waterway network within the DCWW area.</p> <p>The SEA should consider the effects of the Drought Plan on the long term supply of water to the canal network.</p>                                                                                 |
| <b>Canal and River Trust (2015) <i>Living Waterways Transform Places &amp; Enrich Lives: Our 10 Year Strategy</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                               |
| <p>The strategy sets out goals for the organisation for the next ten years. These are themed under:</p> <ul style="list-style-type: none"> <li>• Waterways, including: 'To encourage and grow the number of people boating, using and enjoying the waterways' and 'To look after the heritage and wildlife on our canals and rivers for people to enjoy now and in the future';</li> <li>• Place, including: 'To provide havens for people to escape to away from the pressures of modern life' and 'Enhance wildlife habitats and the natural landscape';</li> <li>• Prosperity, including: 'Our waterways to drive and be a catalyst for regeneration and developments that make a difference to the local area' and 'To contribute to local economies and to provide opportunities and livelihoods for local people'; and</li> <li>• People, including: 'Communities to feel ownership of, and get involved with caring for, their local waterway' and 'To offer something for everyone to enjoy'.</li> </ul> <p>These are in addition to goals relating to Influence and Resources.</p> | <p>The Drought Plan should avoid causing detrimental effects on canals and rivers.</p> <p>The SEA assessment framework should include objectives which take into account the goals of the strategy and the protection of rivers and canals.</p>                                                                                                               |
| <b>Centre for Environment Fisheries and Aquaculture Science and Natural Resources Wales (2021) <i>Assessment of Salmon Stocks and Fisheries in England and Wales 2020</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                               |
| <p>Annual reports on the status of salmon stocks and fisheries in England and Wales have been produced since 1997. These reports present a preliminary assessment for the most recent year to assist the International Council for the Exploration of the Sea (ICES) in providing scientific advice to the North Atlantic Salmon Conservation Organisation (NASCO) and to provide early feedback to fishery managers and anglers.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <p>The Drought Plan should consider the information on salmon stocks and fisheries and the potential effects of WRMP measures on stocks and fisheries.</p> <p>The SEA should consider the effects of the WRMP on salmon stocks and fisheries and should include objectives and guide questions relating to the protection of salmon stocks and fisheries.</p> |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                             |
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| Climate Change Committee (2020) <i>The path to Net Zero and progress on reducing emissions in Wales</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                             |
| <p>These documents are a series of reports on Wales's net zero carbon targets and ways in which Wales will achieve these targets. The December 2020 Advice Report: The path to a net zero Wales recommends that the Welsh Government revise targets and seek to reduce all greenhouse gas emissions to net zero by 2050.</p> <p>One of the reports looks into how Wales is progressing against previous requirements to reduce its carbon footprint. Key to achieving these targets is:</p> <ul style="list-style-type: none"> <li>• Adopting low-carbon solutions;</li> <li>• Expanding low-carbon energy supplies;</li> <li>• Reduce demand for high-carbon activities; and</li> <li>• Transforming land away from agriculture.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>The Drought Plan should seek to contribute to the reduction of the amount of carbon produced as much as possible and help towards achievement of net zero greenhouse gas emissions by 2050.</p> <p>The SEA should have an objective relating to sustainable development that references the need to reduce greenhouse gas emissions.</p> |
| Countryside Council for Wales (CCW) (2003) <i>Priority Habitats of Wales now superseded by NRW (2022) DataMapWales: Habitat Networks</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                             |
| <p>Ecological connectivity is a key consideration in planning for effective biodiversity conservation and building ecosystem resilience through Resilient Ecological Networks (RENS). Modelled habitat networks can provide insights into how landscapes are likely to be functioning and inform the location of actions to improve the connectivity and resilience of protected sites. This spatial dataset consists of maps of habitat networks originally developed by Countryside Council for Wales (CCW) in collaboration with Forestry Commission Wales and Forest Research using a least-cost modelling approach, and now managed and progressively developed by Natural Resources Wales. Patches of habitat and other intervening habitats through which many of their species can move are mapped as habitat networks, which are available for habitats including native woodland, semi-natural grassland, heathland, bog, and fen.</p> <p>Results are available for the whole of Wales and include three levels of habitat networks; core networks (areas within which species that require extensive habitat and disperse poorly are able to move), focal networks (areas within which species tolerant of smaller habitat patches and with greater dispersal ability are able to move), and local networks (areas within species that can persist within small habitat patches and have very limited dispersal abilities can move).</p> <p>These habitat networks also form the basis of 'Priority Ecological Networks' (PENs), a subset of the 'focal' networks described above which have been selected against our suite of Protected Sites.</p> | <p>The Drought Plan and SEA objectives will need to consider the protection of priority habitats.</p>                                                                                                                                                                                                                                       |
| Department for Culture, Media and Sport (DCMS) (2001) <i>The Historic Environment – A Force for the Future</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                             |
| <p>This strategy outlines the Governments policy regarding the historic environment. The strategy has key aims and objectives that demonstrate the contribution the historic environment makes to the country's economic and social well-being.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <p>The Drought Plan and the SEA should seek to ensure any adverse effects on heritage assets are minimised or avoided.</p>                                                                                                                                                                                                                  |
| DCMS and Welsh Government (2007) <i>Heritage Protection for the 21st Century</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                             |
| <p>The document has three core principles:</p> <ul style="list-style-type: none"> <li>• Developing a unified approach to the historic environment;</li> <li>• Maximising opportunities for inclusion and involvement; and</li> <li>• Supporting sustainable communities by putting the historic environment at the heart of an effective planning system.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p>The assessment framework should include objectives which take into account the White Paper's principles.</p>                                                                                                                                                                                                                             |
| DCMS (2013) <i>Scheduled Monuments &amp; Nationally Important but Non-Scheduled Monuments</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                             |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                        |
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| <p>This policy statement sets out Government policy on the identification, protection, conservation and investigation of nationally important ancient monuments, under the provisions of the Ancient Monuments and Archaeological Areas Act 1979. It includes principles relating to the selection of scheduled monuments and the determination of applications for scheduled monument consent.</p>                                                                                                                                                                                                                                                                                            | <p>The Drought Plan should seek to avoid adverse impacts on scheduled and non-scheduled monuments.</p> <p>The SEA assessment framework should include specific objectives relating to cultural heritage</p>                                                            |
| DCMS (2016) <i>The Culture White Paper</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                        |
| <p>This white paper sets out how the government will support the cultural sectors over the coming years and how culture will play an active role in building a fairer and more prosperous nation. It includes four key themes:</p> <ul style="list-style-type: none"> <li>everyone should enjoy the opportunities culture offers, no matter where they start in life;</li> <li>the riches of our culture should benefit communities across the country; and</li> <li>the power of culture can increase our international standing.</li> </ul> <p>The white paper includes objectives relating to the development of the historic environment sector, and the protection of world heritage.</p> | <p>The Drought Plan should seek to protect cultural heritage assets.</p> <p>The SEA assessment framework should include an objective relating to cultural heritage</p>                                                                                                 |
| Defra (2004) <i>Rural Strategy</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                        |
| <p>The strategy sets out rural and countryside policy, and draws upon from lessons learnt following the rural white paper. Objectives include supporting economic and social regeneration across rural England and enhance the value of the countryside and protect the natural environment for this and future generations.</p>                                                                                                                                                                                                                                                                                                                                                               | <p>The implementation of certain Plan options may have an effect upon rural communities and the countryside.</p> <p>The SEA should also seek to ensure that the quality of the region's landscapes, natural resources and biodiversity are maintained or enhanced.</p> |
| Defra (2005) <i>Making space for water: taking forward a new government strategy for flood and coastal erosion risk management in England</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                        |
| <p>The programme seeks to embed flood and coastal erosion risk management across a range of Government policies, including planning, urban and rural development, agriculture, transport, nature conservation and conservation of the historic environment.</p> <p>Objectives:</p> <ul style="list-style-type: none"> <li>To reduce the threat of flooding to people and their property, and</li> <li>To deliver the greatest environmental, social and economic benefit, consistent with the Government's sustainable development principles.</li> </ul> <p>There are no formal targets or indicators.</p>                                                                                    | <p>The Drought Plan may have some linkages with this strategy.</p> <p>The SEA should seek to ensure that coastal erosion in the area is not negatively affected by the implementation of the DP.</p>                                                                   |
| Defra (2007) <i>The Air Quality Strategy for England, Scotland, Wales and Northern Ireland</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                        |
| <p>The Air Quality Strategy sets out air quality objectives and policy options to further improve air quality in the UK to benefit public health, quality of life and help to protect our environment. The strategy sets out objectives relating to particles, nitrogen dioxide, ozone, sulphur dioxide, polycyclic aromatic hydrocarbons, benzene, 1,3- butadiene, carbon monoxide, lead, nitrogen oxides and sulphur dioxide.</p>                                                                                                                                                                                                                                                            | <p>The Drought Plan should take account of air quality objectives in the strategy.</p> <p>The SEA should include guide questions relating to the effects of options on human health and the environment.</p>                                                           |
| Defra, Department of the Environment (NI), Scottish Government and Welsh Assembly Government (2010) <i>Air Pollution: Action in a Changing Climate</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                        |
| <p>This document highlights the health benefits that can be achieved through closer integration of air quality and climate change policies. Air pollution often originates from the same activities that contribute to climate change (notably transport and electricity generation), so linkages between these</p>                                                                                                                                                                                                                                                                                                                                                                            | <p>The Drought Plan should seek to ensure that air quality, climate change and human health are not</p>                                                                                                                                                                |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                           |
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| <p>policy areas could help ensure that they are managed most effectively. Air quality/climate change co-benefits can be realised through actions such as promoting low-carbon vehicles and renewable sources of energy that do not involve combustion.</p> <p>The document aims to set ambitious but realistic air quality targets, and to ensure that climate and air quality targets are better aligned in future.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>adversely affected by the options/measures set out in the plan.</p> <p>The SEA should include guide questions relating to the effects of options on human health and the environment.</p>                                                                                              |
| <b>Defra (2010) <i>Making Space for Nature: A Review of England's Wildlife Sites and Ecological Network</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                           |
| <p>The report answers two questions: Do England's wildlife sites comprise a coherent and resilient ecological network? If not, what needs to be done? The report considers why these questions are important in the context of past, current and future pressures on the environment, and describe what ecological networks are and the benefits they bring. It goes on to consider the strengths and weaknesses of our current wildlife sites, before setting out a prioritised set of ecological solutions to improve the network. Finally, the report sets out 24 recommendations for practical action to Make Space for Nature and achieve a coherent and resilient ecological network.</p> <p>We propose that the overall aim for England's ecological network should be to achieve a natural environment where, compared to the situation in 2000, biodiversity is enhanced with the diversity, functioning and resilience of ecosystems re-established in a network for nature that can sustain these levels into the future, even given continuing environmental change and human pressures.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>The Drought Plan should seek to preserve the ecological network.</p> <p>The SEA framework should consider the ecological network in its objectives/guidance questions.</p>                                                                                                             |
| <b>Defra (2011) <i>Shoreline Management Plan Guidance</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                           |
| <p>This is guidance for the second generation of Shoreline Management Plans and includes updates to guidance first published in 2006. A shoreline management plan (SMP) is a coastal defence management tool. It is a large-scale assessment of the risks associated with coastal processes and helps to reduce these risks to people and the developed, historic and natural environment. This guidance document sets out Defra's and the Welsh Government's strategy for managing flooding and coastal erosion.</p> <p>The guidance includes the following objectives:</p> <ul style="list-style-type: none"> <li>• set out the risks from flooding and erosion to people and the developed, historic and natural environment within the SMP area;</li> <li>• identify opportunities to maintain and improve the environment by managing the risks from floods and coastal erosion;</li> <li>• identify the preferred policies for managing risks from floods and erosion over the next century;</li> <li>• identify the consequences of putting the preferred policies into practice;</li> <li>• set out procedures for monitoring how effective these policies are;</li> <li>• inform others so that future land use, planning and development of the shoreline takes account of the risks and the preferred policies;</li> <li>• discourage inappropriate development in areas where the flood and erosion risks are high; and</li> <li>• meet international and national nature conservation legislation and aim to achieve the biodiversity objectives.</li> </ul> | <p>The Drought Plan should take into account its effects on areas with a SMP.</p> <p>The SEA assessment should take into account the effects of the options on the coast where relevant.</p>                                                                                              |
| <b>Defra (2011) <i>Biodiversity 2020: A strategy for England's wildlife and ecosystem services</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                           |
| <p>This new biodiversity strategy for England provides a comprehensive picture of how we are implementing our international and EU commitments. It sets out the strategic direction for biodiversity policy for the next decade on land (including rivers and lakes) and at sea.</p> <p>The strategy sets 20 targets across 5 strategic goals:</p> <ul style="list-style-type: none"> <li>• Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society;</li> <li>• Reduce the direct pressures on biodiversity and promote sustainable use;</li> <li>• Improve status of biodiversity by safeguarding ecosystems, species and genetic diversity;</li> <li>• Enhance the benefits to all from biodiversity and ecosystem services; and</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <p>The Drought Plan should contribute towards meeting the targets and objectives within the strategy.</p> <p>The SEA should include objectives to improve status of biodiversity and enhance benefits of biodiversity and its ecosystem services, and reduce pressures on ecosystems.</p> |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| <ul style="list-style-type: none"> <li>Enhance implementation through participatory planning, knowledge management and capacity building.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Defra (2012) <i>National Policy Statement for Waste Water</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <p>This National Policy Statement (NPS) sets out Government policy for the provision of major waste water infrastructure. It will be used by the Infrastructure Planning Commission (IPC) to guide its decision making on development consent applications for waste water developments that fall within the definition of Nationally Significant Infrastructure Project (NSIP) as defined in the Planning Act 2008. As well as considering the general need for new waste water infrastructure, this NPS covers two NSIPs which have been assessed as required to meet this need although these do not fall within the DCWW or neighbouring areas and are therefore unlikely to influence, or be influenced by, the DP.</p> | <p>The Drought Plan should consider any unforeseen NSIP proposals that come forward prior to adoption which may affect water resources in the DCWW area.</p> <p>The SEA should consider the cumulative effects of Drought Plan and any unforeseen NSIP proposals that come forward which may affect water resources in the DCWW area.</p>                                                                         |
| Defra (2017) <i>Air Quality Plan for Nitrogen Dioxide (NO2) in UK</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <p>This plan sets out how the Government will improve air quality in the UK by reducing nitrogen dioxide emissions in towns and cities. The air quality plans set out targeted local, regional and national measures across 37 zone plans (areas which have identified air quality issues with nitrogen dioxide), a UK overview document and a national list of measures. Measures relate to freight, rail, sustainable travel, low emission vehicles and cleaner transport fuels, among others.</p>                                                                                                                                                                                                                         | <p>The Drought Plan should have regard to the air quality plans and specific local measures.</p> <p>The SEA should consider the effects of the Drought Plan on air quality.</p>                                                                                                                                                                                                                                   |
| Defra (2020) <i>Drought Plan Direction 2020</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <p>Sets out the timescales for water companies to develop and consult on Drought Plans.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>The Drought Plan should take account of the statutory requirements of this Direction, where relevant.</p>                                                                                                                                                                                                                                                                                                      |
| Defra (2020) <i>National food strategy for England</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <p>This independent report looks at the entire food chain, from field to fork. This includes production, marketing, processing, sale and purchase of food (for consumption in the home and out of it). It also looks at the consumer practices, resources and institutions involved in these processes.</p> <p>The report makes recommendations for government, which has promised to respond formally with a White Paper within 6 months.</p>                                                                                                                                                                                                                                                                               | <p>The implementation of the Drought Plan may have some indirect links with the food industry, through ensuring the availability of water for food based activities.</p> <p>The SEA should also seek to promote the most effective use of the region's natural resources.</p>                                                                                                                                     |
| Defra (2020) <i>Natural Capital Committee's Seventh Annual Report</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <p>The government published its 25 Year Environment Plan (25 YEP) in 2018, setting out how it will deliver on its commitment to leave the environment in a better state for the next generation: as first made in the 2011 White Paper, The Natural Choice. Progress on the Agriculture and Fisheries Bills has been limited, but the Natural Capital Committee (NCC) welcomes the legislation for a target of net-zero greenhouse gas emissions by 2050. Nature based interventions will be critical in meeting this target.</p>                                                                                                                                                                                            | <p>Outputs from the SEA process will help to inform any future potential development by United Utilities of Natural Capital Accounting (NCA) approaches to assessing environmental asset performance. Government (led by HM Treasury and Defra) is increasingly using NCA to support future environmental policy and decision making, and there may be future expectations on water companies to follow suit.</p> |
| Defra (2020) <i>The Path to Sustainable Farming: An Agricultural Transition Plan 2021 to 2024</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                   |



| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                  |
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| <p>The path to sustainable farming is aiming to achieve:</p> <ul style="list-style-type: none"> <li>• a renewed agricultural sector, producing healthy food for consumption at home and abroad, where farms can be profitable and economically sustainable without subsidy</li> <li>• farming and the countryside contributing significantly to environmental goals including addressing climate change</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>The implementation of the Drought Plan may have some indirect links with the food industry, through ensuring the availability of water for food based activities.</p> <p>The SEA should also seek to promote the most effective use of the region's natural resources, including soil, biodiversity and energy resources.</p> |
| Defra (2020) Water abstraction plan: Environment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                  |
| <p>This document sets out how the government will reform water abstraction management over the coming years and how this will protect the environment and improve access to water. The plan states that the current approach to managing abstraction has three main issues:</p> <ul style="list-style-type: none"> <li>• some older licences allow abstraction that can damage the environment;</li> <li>• the current approach is not flexible enough to cope with the pressures of increasing demand for water and climate change in the long term, or to allow abstractors access to additional water when it is available; and,</li> <li>• the abstraction service is outdated and paper-based. The plan explains how approaches identified to address these issues will be implemented.</li> </ul> <p>The Government's approach to addressing these issues has three main elements:</p> <ul style="list-style-type: none"> <li>• making full use of existing regulatory powers and approaches to address unsustainable abstraction and move around 90% of surface water bodies and 77% of groundwater bodies to the required standards by 2021</li> <li>• developing a stronger catchment focus – bringing together the Environment Agency, abstractors and catchment groups to develop local solutions to existing pressures and to prepare for the future. These local solutions will: o protect the environment by changing licences to better reflect water availability in catchments and reduce the impact of abstraction o improve access to water by introducing more flexible conditions that support water storage, water trading and efficient use</li> <li>• supporting these reforms by modernising the abstraction service, making sure all significant abstraction is regulated and bringing regulations in line with other environmental permitting regimes The supplementary Environment provides further information on the work to address unsustainable abstraction set out in the abstraction plan.</li> </ul> <p>The supplementary Catchment Focus document provides further information on proposals set out in the abstraction plan to develop a stronger catchment focus. This is about bringing together the Environment Agency, abstractors and catchment partnerships to identify and implement local solutions to existing pressures and to prepare for the future.</p> <p>The supplementary Abstraction Licensing Service document provides further information on the planned reforms to the abstraction licensing service set out in the abstraction plan.</p> | <p>The Drought Plan should consider if it can help to address the issues set out in the plan.</p> <p>The SEA should consider the effects of the Drought Plan on the environment, climate change and the sustainability of options.</p>                                                                                           |
| Defra (2021) Waste Management Plan for England                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                  |
| <p>The Waste Management Plan for England is an analysis of the current waste management situation in England. The plan does not introduce new policies or change how waste is managed in England. Its aim is to bring current waste management policies together under one national plan.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <p>The Drought Plan may involve the generation of waste (e.g. either through construction requirements or operation of options).</p> <p>The SEA should seek to enhance recycling and minimise the amount of waste going to landfill.</p>                                                                                         |
| Defra, Scottish Government, Welsh Government (2023) The Great Britain Invasive Non-native Species Strategy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                  |
| <p>The strategy sets out key aims and actions for addressing the threats posed by invasive non-native species, including the prevention of invasive species arriving in Britain, early detection and monitoring, eradication and control. The key outcomes of the Strategy are that, by 2030 we will:</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>The Drought Plan should seek to avoid the spread of invasive species.</p>                                                                                                                                                                                                                                                     |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                           |
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| <ul style="list-style-type: none"> <li>Prevention: reduce establishments of INNS by at least 50% compared to 2000 levels</li> <li>Surveillance, early detection and monitoring: significantly improve our detection and monitoring capability, including increasing inspections and investigations</li> <li>Management: eradicate, control or contain INNS – prioritised by greatest impact and the likelihood of success</li> <li>Prioritisation and risk analysis: set out an agreed approach to the prioritisation of species based on risk and likelihood of success to ensure our efforts are focused to where they can achieve the greatest benefit</li> <li>Evidence: commission the research priorities outlined in the Evidence Strategic Plan, to ensure that the strategy is based on the best available evidence, and identify gaps and priority areas for further development</li> <li>Awareness raising: increase awareness of INNS issues and promote appropriate changes in behaviour or attitudes throughout all relevant sectors and among the general public</li> <li>Coordination: improve co-ordination of actions within governments, government associated bodies, and key actors outside government</li> </ul> <p>The strategy covers the period 2023 to 2030.</p>                                                                                                                                                                                                                                        | The SEA should consider the effects of the Drought Plan on biodiversity                                                                                                                                   |
| Department for Levelling Up, Housing & Communities (2023) <i>National Planning Policy Framework</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                           |
| <p>The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these are expected to be applied. The National Planning Policy Framework constitutes guidance for local planning authorities and decision-takers both in drawing up plans and as a material consideration in determining applications.</p> <p>At the heart of the NPPF is a presumption in favour of sustainable development, which should be seen as a golden thread running through both plan-making and decision-taking. The NPPF requires that the planning system should be genuinely plan-led and that plans should:</p> <ol style="list-style-type: none"> <li>be prepared with the objective of contributing to the achievement of sustainable development</li> <li>be prepared positively, in a way that is aspirational but deliverable;</li> <li>be shaped by early, proportionate and effective engagement between plan makers and communities, local organisations, businesses, infrastructure providers and operators and statutory consultees;</li> <li>contain policies that are clearly written and unambiguous, so it is evident how a decision maker should react to development proposals;</li> <li>be accessible through the use of digital tools to assist public involvement and policy presentation; and</li> <li>serve a clear purpose, avoiding unnecessary duplication of policies that apply to a particular area (including policies in this Framework, where relevant).</li> </ol> | The Drought Plan and SEA should take account of the key components of sustainable development and consider the three dimensions to sustainable development: economic, social and environmental.           |
| Environment Agency (2007) <i>Soil: A Precious Resource</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                           |
| <p>The soil strategy identifies the Environment Agency's priorities, sets out their role and says what action is to be taken to protect, manage and restore soil. Damaged soil structure can lead to flooding, water pollution and can affect the landscape and archaeological features.</p> <p>The strategy also outlines the part managing soils can play in mitigating climate change.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p>The Drought Plan should ensure the sustainable management of soil resources.</p> <p>SEA objectives should reflect and consider relevant priorities from the Soil: A Precious Resource publication.</p> |
| Environment Agency (2008) <i>Better Sea Trout and Salmon Fisheries: Our Strategy for 2008-2021</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                           |
| <p>The strategy has the goal of more sea trout and more salmon in more rivers bringing more benefit. This goal is to be brought about through achieving three broad targets:</p> <ol style="list-style-type: none"> <li>1 Self-sustaining sea trout and salmon in abundance in more rivers;</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | The Drought Plan should take the strategy into account where the option may have an effect on salmon and trout, e.g. where an option may involve inserting or removing a barrier to fish.                 |

| <b>National Plans and Programmes</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                      |
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| <p>2 Economic and social benefits optimised for sea trout and salmon fisheries;</p> <p>3 Widespread and positive partnerships, producing benefits.</p> <p>There are twelve more detailed targets lying below these broad goals which relate to salmon and fisheries. These could be relevant to monitoring the effects of the DP.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>The SEA should include a guide question in relation to the effects of options on recreation (i.e. recreational angling) and also appropriate targets in monitoring proposals.</p>                 |
| <b>Environment Agency (2011) <i>National Flood and Coastal Erosion Risk Management Strategy for England</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                      |
| <p>This strategy describes what needs to be done by all organisations involved in flood and coastal erosion risk management. These include local authorities, internal drainage boards, water and sewerage companies, highways authorities, and the Environment Agency. They all act to reduce the risk of flooding and coastal erosion, and manage its consequences.</p> <p>The strategy sets out a statutory framework that will help communities, the public sector and other organisations to work together to manage flood and coastal erosion risk. It will support local decision-making and engagement in FCERM, making sure that risks are managed in a co-ordinated way across catchments and along each stretch of coast. This includes the development of local flood risk management strategies by lead local flood authorities, as well as our strategic overview of all sources of flooding and coastal erosion</p>                                                                    | <p>The Drought Plan should seek to ensure that activities don't result in additional risk of flooding or coastal erosion.</p> <p>The SEA framework should consider flooding and coastal erosion.</p> |
| <b>Environment Agency (2016) <i>Creating a Better Place: Our Ambition to 2020</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                      |
| <p>This document includes the EA's vision, principles and purpose, and sets out its objectives to create a cleaner healthier environment which benefits people and the economy, a nation better protected against natural threats and hazards, and its commitment to work in partnership. The key objectives for 2016 to 2020 are:</p> <ul style="list-style-type: none"> <li>- a cleaner, healthier environment which benefits people and the economy;</li> <li>- a nation better protected against natural threats and hazards, with strong response and recovery capabilities; and</li> <li>- higher visibility, stronger partnerships and local choices.</li> </ul>                                                                                                                                                                                                                                                                                                                               | <p>The SEA and Drought Plan should consider the EA's priorities.</p>                                                                                                                                 |
| <b>Environment Agency (undated) <i>Restoring Sustainable Abstraction Programme</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                      |
| <p>EA note that there is evidence to suggest that unsustainable abstraction of groundwater and surface water could be contributing to environmental damage of rivers and wetlands in England and Wales, including sites of national and international conservation importance. In May 1997, at the Government's Water Summit, a commitment was made to reverse the damage caused by past decisions. EA investigates where over-abstraction has occurred and work with local people to restore sustainable supplies.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>The Drought Plan will need to consider the implications of changes to abstraction strategies.</p> <p>The SEA should include a guide question relating to water resources.</p>                     |
| <b>Environment Agency (various) <i>Drought Plans</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                      |
| <p>Drought Plans prepared by the EA:</p> <ul style="list-style-type: none"> <li>- outline how the EA will manage water resources during a drought and defines their role and responsibilities;</li> <li>- aim to reconcile the competing interests of the environment, the need for public water supply and other abstractions;</li> <li>- show what additional environmental monitoring the EA will carry out;</li> <li>- provide a framework for liaison with water companies, awareness campaigns and determination of drought permits;</li> <li>- range from high-level activities where they co-ordinate drought management over England and Wales to a local level where they outline specific operational activities.</li> </ul> <p>Those plans particularly relevant to the DCWW area include the Head Office Drought Plan (covering England and Wales), Drought Plans for Wales and the Midlands as well as area plans for south east, south west and north Wales and the west Midlands.</p> | <p>The Drought Plan should, where appropriate, take into account and accord with the provisions contained within the EA Drought Plans listed.</p>                                                    |
| <b>Environment Agency (2020) <i>EA2025 creating a better place</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                      |

## National Plans and Programmes

The plan sets out the Environment Agency's ambition for how they plan to create better places for people, wildlife and the environment, up to 2025.

This document includes the Environment Agency's purpose, priorities, culture and values as well as how they will help to deliver the 25 year environment plan. It includes the metrics that the Environment Agency will be measured against so they know when they are succeeding in our ambitions. The plan sets out 3 long term goals:

- A nation resilient to climate change
- Healthy air, land and water
- Green growth and a sustainable future

The SEA and the Drought Plan should consider the Environment Agency's priorities.

### Environment Agency (2020) *Meeting our future water needs: a national framework for water resources*

The national framework report marks a move to strategic regional planning. It sets out the principles, expectations and challenges for 5 regional groups (including Water Resources West, which part of the DCWW area forms part of) made up of the 17 English water companies and other water users. The framework explores England's long term water needs for:

- public water supplies
- agriculture
- the power and industry sectors
- environmental protection

For the Water Resources West Region the framework estimates that additional public water supply needs between 2025 and 2050 are 639 Ml/d.

The framework states that the Water Resources West Region will face pressures in the future. However, it has a significant surplus, the potential to reduce demand further and options to supply more water. The framework states that the options identified in the water company WRMPs are enough to meet the higher need estimate. If greater reductions in water use can be achieved or further options identified, there is potential to transfer more water to other regions.

The plan sets out that the regional groups will each produce one plan and states that it must consider how the region will be resilient to a range of uncertainties and future scenarios. It must identify a set of options that provide the best value to customers, society and the environment rather than simply the least cost. Together the 5 plans must meet the national need.

The plans need to address the following:

- Increasing resilience to drought
- Greater environmental improvement
- Reducing long term water usage
- Reducing leakage
- Reducing the use of drought permits and orders
- Increasing supplies.
- The framework states that plans must include:
  - an initial resource position – a resource assessment which looks at future scenarios and explores the main challenges and sensitivities
  - a statement of ambition, including the regional policies and principles
  - a list of the options considered – to meet the regional need and contribution to the national need
  - the preferred plan – identifying the best value options to meet all future water needs across multiple sectors and users.

The Drought Plan should seek to support the achievement of the aims of the framework.

The SEA should include an objective/guide question relating to water resources.

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                              |
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| The framework also sets out a number of criteria that the plans must fulfil as well as things that the plans should or could achieve or include.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                              |
| Environment Agency (2020) <i>National Flood and Coastal Erosion Risk Management Strategy for England</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                              |
| <p>This strategy describes what needs to be done by all organisations involved in flood and coastal erosion risk management. These include local authorities, internal drainage boards, water and sewerage companies, highways authorities, and the Environment Agency. They all act to reduce the risk of flooding and coastal erosion and manage its consequences.</p> <p>The strategy sets out a statutory framework that will help communities, the public sector and other organisations to work together to manage flood and coastal erosion risk. It supports local decision-making and engagement in FCERM, making sure that risks are managed in a co-ordinated way across catchments and along each stretch of coast. This includes the development of local flood risk management strategies by lead local flood authorities, as well as our strategic overview of all sources of flooding and coastal erosion.</p> <p>This strategy's long-term vision is for: a nation ready for, and resilient to, flooding and coastal change – today, tomorrow and to the year 2100.</p> <p>It has 3 long-term ambitions, underpinned by evidence about future risk and investment needs. They are:</p> <ul style="list-style-type: none"> <li>• climate resilient places: working with partners to bolster resilience to flooding and coastal change across the nation, both now and in the face of climate change</li> <li>• today's growth and infrastructure resilient in tomorrow's climate: making the right investment and planning decisions to secure sustainable growth and environmental improvements, as well as infrastructure resilient to flooding and coastal change</li> <li>• a nation ready to respond and adapt to flooding and coastal change: ensuring local people understand their risk to flooding and coastal change, and know their responsibilities and how to take action.</li> </ul> | <p>The Drought Plan should be prepared in line with the strategy.</p> <p>The SEA framework should consider flooding and coastal erosion.</p> |
| Environment Agency (2020) <i>Water Company Drought Plan guideline</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                              |
| <p>This guidance, written in conjunction with Defra, outlines the legislative requirements for a drought plan. This document also provides a timeline for the drought planning process.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | The Drought Plan and the SEA should consider the guideline, where relevant.                                                                  |
| Environment Agency (2022) <i>Water resources planning guideline supplementary guidance – Environment and society in decision-making</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                              |
| <p>This document supports the water resources planning guideline. It provides guidance on how to consider the environment and society in decision-making for water resources management plans and regional plans. It is applicable to England only. There is separate guidance for Wales available from Natural Resources Wales.</p> <p>This supplementary guidance sets out how the environment and society should be considered through:</p> <ul style="list-style-type: none"> <li>• Strategic Environmental Assessment (SEA)</li> <li>• biodiversity net gain assessment</li> <li>• natural capital assessments</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | The Drought Plan and SEA should take into account the supplementary guidance.                                                                |
| Food and Agriculture Organisation of the United Nations (2015) <i>Revised World Soil Charter</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                              |
| <p>This document contains key principles and guidelines to benefit soil stakeholders to identify the necessary policy and action approaches to guarantee global sustainable soil management</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | The SEA should take into consideration the principles laid out in the charter with regard to soils.                                          |
| Food and Agriculture Organisation of the United Nations (2016) <i>Voluntary Guidelines for Sustainable Soil Management</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                              |
| <p>These guidelines provide general technical and policy recommendations on sustainable soil management (SSM) for a wide range of committed stakeholders and how to translate them into practice.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | The Drought Plan and SEA should take into account these guidelines.                                                                          |
| Future Generations Commissioner for Wales (2020) <i>The Future Generations Report 2020</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                              |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                        |
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| <p>Producing a Future Generations Report every five years, which provides an assessment of the improvements public bodies should make in relation to their wellbeing objectives, is a statutory duty of the Future Generations Commissioner under the Well-being of Future Generations (Wales) Act 2015.</p> <p>The report includes (as required by the act):</p> <ul style="list-style-type: none"> <li>• An assessment of how public bodies can better safeguard the ability of future generations to meet their own needs; and take greater account of the long-term impact of the things they do.</li> <li>• A summary of evidence gathered, and activities undertaken, by the Commissioner during the reporting period.</li> <li>• A summary of the reviews conducted by the Commissioner; an account of any research or other study undertaken.</li> <li>• Any other information the Commissioner considers appropriate.</li> </ul> <p>This report provides advice, guidance and tools for public bodies involved in making the aspirations set out in the act a reality for people in Wales. It also showcases actions that are taking in place in Wales and across the world.</p> | <p>The Drought Plan should consider how it can contribute to the seven well-being goals set out in the Wellbeing of Future Generations Act. The Drought Plan should take into consideration the recommendations of the report.</p> <p>The SEA Framework should reflect the seven well-being goals.</p> |
| HM Government (1975) Salmon and Freshwater Fisheries Act                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                        |
| <p>The act encompasses fishing regulation, as well as illegal obstruction of migratory pathways and prohibited modes of destroying fish. The act allows the salmon to maintain an environmentally stable population and support the fishing industry.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>The SEA and Drought Plan should consider the protection of Salmon and freshwater fish.</p>                                                                                                                                                                                                          |
| HM Government (1975) Reservoirs Act                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                        |
| <p>The Reservoirs Act 1975 provides a legal framework to ensure the safety against failure of large raised reservoirs.</p> <p>The Reservoirs Act 1975 applies to reservoirs that hold at least 25,000 cubic metres of water above natural ground level.</p> <p>Safety legislation for reservoirs in the United Kingdom was introduced in 1930 after several reservoir disasters had resulted in loss of life. This law was superseded by the Reservoirs Act 1975.</p> <p>Under the Reservoirs Act 1975 reservoir owners (undertakers) have ultimate responsibility for the safety of their reservoirs.</p> <p>Reservoir owners must appoint a <u>panel engineer</u> (a specialist civil engineer who is qualified and experienced in reservoir safety) to supervise the design and construction of the reservoir, to continuously supervise the reservoir when built (supervising engineer) and to carry out periodic inspections (inspecting engineer).</p>                                                                                                                                                                                                                              | <p>The Drought Plan should consider reservoirs.</p>                                                                                                                                                                                                                                                    |
| HM Government (1981) Wildlife and Countryside Act                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                        |
| <p>The Act makes it an offence (with exceptions) to;</p> <ul style="list-style-type: none"> <li>- Intentionally kill, injure or take any wild bird or their eggs or nests;</li> <li>- Intentionally kill, injure, or take, possess, or trade in any wild animal listed in Schedule 5;</li> <li>- Prohibits interference with places used for shelter or protection, or intentionally disturbing animals; and</li> <li>- Pick, uproot, trade in, or possess (for the purposes of trade) and wild plant listed in Schedule 8.</li> </ul> <p>The Act also provides for the notification of Sites of Special Scientific Interest (SSSI) and require surveying authorities to maintain up to date definitive maps and statements, for the purpose of clarifying public rights of way.</p>                                                                                                                                                                                                                                                                                                                                                                                                      | <p>The Drought Plan must ensure full compliance with the Act.</p> <p>The SEA should ensure a positive contribution to the wildlife within the operational area.</p>                                                                                                                                    |
| HM Government (1991) Water Resources Act                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                        |



| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                     |
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| The Water Resources Act applies to England and Wales and established the National Rivers Authority (now the Environment Agency) to regulate water pollution, water resources, flood defence, fisheries and navigation. The Act covers water abstraction and impounding and discharges to surface and ground waters and coastal waters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | The Drought Plan must ensure full compliance with the Act                                                                                                                                                                           |
| HM Government (1994) <i>UK Biodiversity Action Plan (BAP)</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                     |
| <p>The aim of the action plan is to conserve and enhance biological diversity in the UK and to contribute to the conservation of national and global biodiversity and include the follow aims to maintain and, where practicable, to enhance:</p> <ul style="list-style-type: none"> <li>- The overall populations and natural ranges of native species and the quality and range of wildlife habitats and ecosystems;</li> <li>- Internationally and nationally important and threatened species, habitats and ecosystems;</li> <li>- Species, habitats and natural and managed ecosystems that are characteristic of Kent;</li> <li>- The biodiversity of natural and semi-natural habitats, where this has diminished over 3 recent decades, and</li> <li>- Public awareness of, and involvement in, conserving biodiversity.</li> </ul> | Ensure that Drought Plan and SEA encourage conservation and offer protection to areas and species of high conservation importance as identified in this action plan.                                                                |
| HM Government (2000) <i>Countryside and Rights of Way Act 2000</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                     |
| This act extends the public's ability to enjoy the countryside and safeguards landowners and occupiers. The Act creates a new statutory right of access to open county and registered common land, modernise the right of way system, give greater protection to Sites of Special Scientific Interest (SSSIs), provide greater protection arrangements for Areas of Outstanding Natural Beauty (AONBs) and strengthen wildlife enforcement legislation.                                                                                                                                                                                                                                                                                                                                                                                     | The SEA must make sure that the Act is supported and that public rights of way and access to the countryside are maintained and where possible enhanced.                                                                            |
| HM Government (2003) <i>Water Act 2003</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                     |
| <p>The four broad aims of the Act are:</p> <ul style="list-style-type: none"> <li>- the sustainable use of water resources;</li> <li>- strengthening the voice of consumers;</li> <li>- a measured increase in competition; and</li> <li>- the promotion of water conservation.</li> </ul> <p>It amends the Water Industry Act 1991 so that water companies:</p> <ul style="list-style-type: none"> <li>- are given a duty to prepare and publicise drought plans;</li> <li>- are placed under a duty to agree and publicise water resource management plans; and</li> <li>- are placed under an enforceable duty to further water conservation.</li> </ul> <p>As part of the Act the Water Services Regulation Authority (Ofwat) became the economic regulator of the water and sewage industry in England and Wales.</p>                  | <p>The Drought Plan needs to be prepared in accordance with the requirements of the Act.</p> <p>The SEA must ensure that the full obligations are met in terms of the environmental implications to abstraction and discharges.</p> |
| HM Government (2005) <i>UK Sustainable Development Strategy</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                     |
| <p>The strategy for sustainable development aims to enable all people throughout the world to satisfy their basic needs and enjoy a better quality of life without compromising the quality of life of future generations.</p> <p>This is implemented with 4 key priorities:</p> <ul style="list-style-type: none"> <li>- Sustainable consumption and production;</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                | The Drought Plan and SEA must consider and implement the key priorities and objectives of the strategy                                                                                                                              |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                        |
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| <ul style="list-style-type: none"> <li>- Climate change;</li> <li>- Natural resource protection;</li> </ul> Sustainable communities.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                        |
| HM Government (2006) <i>Natural Environment and Rural Communities Act 2006</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                        |
| An act to make provision about bodies concerned with the natural environment and rural communities to make provision in connection with wildlife sites of special scientific interest. National Parks and the Broads; to amend the law relating to rights of way to make provision as to the inland Waterways Amenity Advisory Council; to provide for flexible administrative arrangements in connection with functions relating to the environment and rural affairs and certain other functions; and connected purposes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | The Drought Plan and SEA should have regard to protected wildlife sites and species and rights of way.                                                                                                                                                                                                                                 |
| HM Government (2006) <i>Climate Change and Sustainable Energy Act 2006</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                        |
| The Act was enacted after the publication of the UK Climate Change Programme (2006). It places an obligation on the government to report to Parliament on greenhouse gas emissions in the UK and action taken by Government to reduce these emissions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <p>The Drought Plan should take into account carbon emissions associated with the measures.</p> <p>The SEA could include an objective/guide question in the assessment framework to reduce greenhouse gas/carbon dioxide emissions. Consider whether the monitoring arrangements can be utilised to monitor the effects of the DP.</p> |
| HM Government (2008) <i>Climate Change Act 2008</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                        |
| <p>This Act aims:</p> <ul style="list-style-type: none"> <li>- to improve carbon management and help the transition towards a low carbon economy in the UK; and</li> <li>- to demonstrate strong UK leadership internationally, signalling that the UK is committed to taking its share of responsibility for reducing global emissions in the context of developing negotiations on a post-2012 global agreement at Copenhagen next year.</li> </ul> <p>The Act seeks greenhouse gas emission reductions through action in the UK and abroad of at least 80 per cent by 2050, and reductions in CO<sub>2</sub> emissions of at least 26 per cent by 2020, against a 1990 baseline. The 2020 target will be reviewed soon after Royal Assent to reflect the move to all greenhouse gases and the increase in the 2050 target to 80 per cent.</p> <p>Further the Act provides for a carbon budgeting system which caps emissions over five year periods, with three budgets set at a time, to set out our trajectory to 2050. The first three carbon budgets will run from 2008-12, 2013-17 and 2018-22, and must be set by 1 June 2009.</p> | <p>The Drought Plan should take into account carbon emissions associated with the measures.</p> <p>The SEA could include an objective/guide question in the assessment framework to reduce greenhouse gas/carbon dioxide emissions. Consider whether the monitoring arrangements can be utilised to monitor the effects of the DP.</p> |
| HM Government (2009) <i>Marine and Coastal Access Act 2009</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                        |
| The Marine and Coastal Access Act sets out a number of measures including the establishment of Marine Conservation Zones (MCZs) and Marine Spatial Plans. It also includes amendments to the Salmon and Freshwater Fisheries Act, 1975.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p>The Drought Plan should take into account its effects on coastal areas.</p> <p>The SEA assessment should take into account the effects of the actions on the coast where relevant.</p>                                                                                                                                              |
| HM Government (2009) <i>The Eels (England and Wales) Regulations 2009 (as amended 2011)</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                        |
| These regulations were introduced in 2009 and amended in 2011. They afford powers to the Environment Agency to implement measures for the recovery of European eel stocks and have important implications for operators of abstractions and discharges.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | The SEA and Drought Plan should have regard to Eel populations.                                                                                                                                                                                                                                                                        |
| HM Government (2010) <i>Flood and Water Management Act 2010</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                        |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                         |
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| <p>The Flood and Water Management Act 2010 aims to provide better, more sustainable management of flood risk for people, homes and businesses, help safeguard community groups from unaffordable rises in surface water drainage charges and protect water supplies to the consumer. The Act will also implement recommendations made by Sir Michael Pitt in his review of the 2007 floods. This will include giving water companies new powers to better control non-essential domestic uses of water during periods of water shortage.</p> <p>The Act places a number of statutory duties on water companies including:</p> <ul style="list-style-type: none"> <li>- a duty to act consistently with the National Strategy; and</li> <li>- a duty to have regard to the content of the Local Flood Risk Management Strategies.</li> </ul> <p>Does not contain any targets.</p>                                                                                                                                                                                                                                         | <p>The Drought Plan should be in conformity with the Act.</p> <p>The SEA should include objectives relating to flooding and water use.</p>                                                                                                                                                                                                                                              |
| HM Government (2010) <i>The Water Use (Temporary Bans Order) Order 2010</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                         |
| <p>The Water Use (Temporary Bans Order) Order 2010 allows for temporary restrictions on customers use of the water supply for a range of non-essential reasons including watering a garden with a hosepipe, cleaning a private vehicle with a hosepipe and filling a pond.</p> <p>The water company can decide whether certain activities are exempt from the Temporary Use Ban in light of the local water resource situation and then working with householders and businesses in the community to save water with the minimum of inconvenience.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <p>The Drought Plan should be in accordance with the Order.</p> <p>The SEA should include an objective relating to water use.</p>                                                                                                                                                                                                                                                       |
| HM Government (2011) <i>UK Marine Policy Statement</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                         |
| <p>The Marine Policy Statement (MPS) sets out the framework for preparing Marine Plans and taking decisions affecting the marine environment, supporting the delivery of the following high level marine objectives:</p> <ul style="list-style-type: none"> <li>• Achieving a sustainable marine economy;</li> <li>• Ensuring a strong, healthy and just society;</li> <li>• Living within environmental limits;</li> <li>• Promoting good governance;</li> <li>• Using sound science responsibly.</li> </ul> <p>Does not contain any targets.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <p>The Drought Plan should take into account its effects on coastal areas.</p> <p>The SEA assessment should take into account the effects of the actions on the coast/marine environment where relevant.</p>                                                                                                                                                                            |
| HM Government (2011) <i>National Policy Statements for Energy Infrastructure</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                         |
| <p>The energy National Policy Statements (NPSs) set out national policy against which proposals for major energy projects will be assessed and decided on by the Infrastructure Planning Commission. The following six NPSs have been designated:</p> <ul style="list-style-type: none"> <li>• Overarching NPS for Energy (EN1);</li> <li>• Fossil Fuel Electricity Generating Infrastructure NPS (EN2);</li> <li>• Renewable Energy Infrastructure NPS (EN3) ;</li> <li>• Gas Supply Infrastructure &amp; Gas and Oil Pipelines NPS (EN4);</li> <li>• Electricity Networks Infrastructure NPS (EN5);</li> <li>• Nuclear Power Generation NPS (EN6).</li> </ul> <p>The Overarching NPS for Energy sets out that the purpose of the NPSs is to develop a clear, long-term policy framework which facilitates investment in the necessary new infrastructure (by the private sector) and in energy efficiency. The NPS highlights that the construction, operation and decommissioning of this infrastructure can lead to increased demand for water, involve discharges to water and cause adverse ecological effects</p> | <p>The Drought Plan may need to consider the potential impact of major energy proposals on water resources in the DCWW area. This may include the potential development of nuclear power stations at Wylfa and Oldbury.</p> <p>The SEA should consider the cumulative effects of the Drought Plan and any major energy proposals which may affect water resources in the DCWW area.</p> |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                           |
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| <p>resulting from physical modifications to the water environment. The NPSs expect applicants to undertake an assessment of the existing status of, and impacts of the proposed project on, water quality, water resources and physical characteristics of the water environment.</p> <p>One site is identified in the DCWW area (Wylfa, Anglesey) as being potentially suitable for the deployment of a new nuclear power station alongside further sites outside the DCWW including Oldbury in South Gloucestershire.</p> <p>The NPSs reiterate and are underpinned by the target to cut greenhouse gas emissions by at least 80 per cent by 2050, compared to 1990 levels.</p>                                                                                                                                                                                                                         |                                                                                                                                                                                                                                           |
| HM Government (2013) <i>UK Renewable Energy Roadmap</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                           |
| <p>The Renewable Energy Roadmap outlines the UK's framework for delivering 15% of energy demand from renewable sources by 2020 (as mandated by the EU Renewable Energy Directive). Although starting from a low-level of renewable generation, eight technologies were identified that have the potential to generate 90% of the renewable target by 2020. These are: onshore wind, offshore wind, marine energy, biomass electricity, biomass heat, ground source and air source heat pumps and renewable transport.</p> <p>The Roadmap includes an indication from the Welsh Government that it has the potential to double the amount of renewable energy consumption by 2025, and to deliver 4GW of power from marine energy.</p> <p>The 2013 update highlights that offshore wind and marine energy have the potential to make significant contributions to meeting the UK's future energy needs</p> | <p>The Drought Plan should contribute towards increasing the proportion of energy from renewable energy sources.</p> <p>The SEA assessment framework should include consideration of the use of energy from renewable energy sources.</p> |
| HM Government (2014) <i>Water Act 2014</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                           |
| <p><i>The purpose of the Act was to make provision about the water industry; about compensation for modification of licences to abstract water; about main river maps; about records of waterworks; for the regulation of the water environment; about the provision of flood insurance for household premises; about internal drainage boards; about Regional Flood and Coastal Committees; and for connected purposes.</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p>The Drought Plan should ensure that future water management is resilient, efficient and customer focused</p>                                                                                                                           |
| HM Government (2015) <i>Infrastructure Act 2015</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                           |
| <p>The Infrastructure Act (inter alia) gives environmental authorities new powers to require landowners to take action on invasive non-native species or permit others to enter the land and carry out those operations.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <p>The SEA assessment framework should include guide questions relating to invasive species.</p>                                                                                                                                          |
| HM Government (2016) <i>Environmental Permitting (England and Wales) Regulations 2016 (as amended 2018)</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                           |
| <p>Provides a system for environmental permits and exemptions for industrial activities, mobile plant, waste operations, mining waste operations, water discharge activities, groundwater activities and radioactive substances activities. It also sets out the powers, functions and duties of the regulators.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <p>The Drought Plan should accord with these Regulations.</p>                                                                                                                                                                             |
| HM Government (2017) <i>Conservation of Habitats &amp; Species Regulations 2017</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                           |
| <p>The Conservation of Habitats and Species Regulations 2017 consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations transpose Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive) into national law.</p> <p>The Regulations provide for the designation and protection of 'European sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites.</p> <p>Under the Regulations, competent authorities i.e. any Minister, government department, public body, or person holding public office, have a general duty, in the exercise of any of their functions, to have regard to the EC Habitats Directive.</p>                                                                           | <p>The Drought Plan must ensure full compliance with the Regulations.</p> <p>The SEA should take into account the effects of the actions on biodiversity.</p>                                                                             |
| HM Government (2018) <i>A Green Future: Our 25 Year Plan to Improve the Environment</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                           |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                         |
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| <p>This report outlines the following aims that the UK Government hopes to achieve in the next 25 years:</p> <ol style="list-style-type: none"> <li>1. Clean air.</li> <li>2. Clean and plentiful water.</li> <li>3. Thriving plants and wildlife.</li> <li>4. A reduced risk of harm from environmental hazards such as flooding and drought.</li> <li>5. Using resources from nature more sustainably and efficiently.</li> <li>6. Enhanced beauty, heritage and engagement with the natural environment.</li> <li>7. Mitigating and adapting to climate change.</li> <li>8. Minimising waste.</li> <li>9. Managing exposure to chemicals.</li> <li>10. Enhancing biosecurity.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                               | <p>The Drought Plan must ensure consideration of the relevant measures concerning water and drought.</p> <p>The SEA should take into account the effects of the actions on the natural environment through the range of SEA objectives covering biodiversity, soil, water, air and material assets.</p> |
| HM Government (2018) The Water Supply Regulations 2018                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                         |
| <p>These regulations address the quality of water supplied by water undertakers, who supply areas mainly or wholly in Wales. The new Regulations implement Directive <a href="#">98/83/EC</a> on the quality of water intended for human consumption.</p> <p>Under these Regulations, water undertakers are required to identify the areas that are to be water supply zones on an annual basis. A water supply zone cannot exceed 100,000 in terms of population before the beginning of each year of the supply.</p> <p>The standards of wholesomeness are set out, in respect of water for human consumption, be that through drinking, washing, food preparation or cooking and food production. In order to qualify as wholesome, the water cannot contain any:</p> <ul style="list-style-type: none"> <li>- micro-organism, other than those listed in the full text of <a href="#">Schedule 1</a> to the Regulations, or parasite; or</li> <li>- substances, other than those listed in the full text of <a href="#">Schedule 1</a> to the Regulations.</li> </ul> | <p>The Drought Plan must ensure full compliance with the Regulations.</p> <p>The SEA should take into account the effects of the measures on drinking water quality.</p>                                                                                                                                |
| HM Government (2019) <i>The Invasive Alien species (Enforcement and Permitting) Order 2019</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                         |
| <p>This Order allows for the enforcement of the EU Invasive Alien Species Regulation 1143/2014 on the prevention and management of invasive alien plant and animal species in England and Wales, including the relevant licenses, permits and rules for keeping invasive alien species.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>The SEA should seek to address any potential issues or effects on existing measures to address invasive alien species.</p>                                                                                                                                                                           |
| HM Government (2020) <i>The Agriculture Act 2020</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                         |
| <p>The Bill provides the legislative framework for replacement agricultural support schemes to replace the European schemes after UK's exit from the EU and the EU's Common Agricultural Policy (CAP). The Bill provides powers to implement new approaches to farm payments and land management. In England, farmers will be paid to produce 'public goods' such as environmental or animal welfare improvements. The Bill also includes wider measures, including on improving fairness in the agricultural supply chain and on the operation of agricultural markets.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <p>The Drought Plan should consider the implications of the act.</p>                                                                                                                                                                                                                                    |
| HM Government (2020) <i>Energy White Paper: Powering our Net Zero Future</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                         |

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| <p>The White Paper follows on from the Prime Minister's Ten Point Plan and the National Infrastructure Strategy. The Energy White Paper provides further clarity on the Prime Minister's measures and puts in place a strategy for the wider energy system that:</p> <ul style="list-style-type: none"> <li>Transforms energy, building a cleaner, greener future for the country, its people and the planet</li> <li>Supports a green recovery, growing the economy, supporting green jobs across the country in new green industries and leveraging new green export opportunities</li> <li>Creates a fair deal for consumers, protecting the fuel poor, providing opportunities to save money on bills, providing warmer, more comfortable homes and balancing investment against bill impacts</li> </ul> | <p>The Drought Plan should consider if it can support the delivery of the aims of the white paper.</p> <p>The SEA should include objectives and guide questions relating to energy use and carbon emissions.</p> |
| HM Government (2021) <i>The Environment Act</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                  |
| <p>The Act seeks to set legislation to improve air and water quality, tackle waste, increase recycling, halt the decline of species, and improve the natural environment. Amongst its provisions, The Act places a duty enshrined in law to ensure water companies secure a progressive reduction in the adverse impacts of discharges from storm overflows. New duties will also require the government to publish a plan to reduce sewage discharges from storm overflows by September 2022 and report to Parliament on the progress towards implementing the plan. The Environment Act also includes a legally binding target on species abundance for 2030, to help reverse declines of species like the hedgehog, red squirrel and water vole.</p>                                                      | <p>The Drought Plan should seek to protect and enhance the natural environment, taking into consideration the principals and guidance set out through the Environment Bill.</p>                                  |
| HM Government (2022) <i>UK Climate Change Risk Assessment 2022</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                  |
| <p>This report outlines the UK government and devolved administrations' position on the key climate change risks and opportunities that the UK faces today.</p> <p>As required by the Climate Change Act 2008, the UK government has undertaken the third five-year assessment of the risks of climate change on the UK. This is based on the Independent Assessment of UK Climate Risk, the statutory advice provided by the Climate Change Committee (CCC), commissioned by the UK government and devolved administrations.</p> <p>The risk assessment considers sixty-one UK-wide climate risks and opportunities cutting across multiple sectors of the economy and prioritises eight risk areas for action in the next two years.</p>                                                                   | <p>The Drought Plan and the SEA should take into consideration the climate risks identified by the assessment.</p>                                                                                               |
| HM Treasury (2016) <i>National Infrastructure Delivery Plan</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                  |
| <p>This document is the Government's updated National Infrastructure Delivery Plan. It sets out the plan to 2021 and beyond and takes a targeted approach to infrastructure investment and delivery across different sectors. It contains major commitments to improve the UK's transport, energy, communications, waste, water, housing and flood and coastal erosion, as well as steps to attract new private sector investment. It includes reference to the production of Water Resources Management Plans and the Ofwat price review.</p>                                                                                                                                                                                                                                                               | <p>The Drought Plan will be produced as indicated in the Delivery Plan.</p>                                                                                                                                      |
| Natural Resources Wales (2020) <i>Salmon and sea trout plan of action for Wales 2020</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                  |
| <p>This plan of action describes and provides details on the actions required to restore healthy and more sustainable populations of salmon and sea trout in Wales, which are protected species by law. The shared vision is "To protect, through the application of best-practice science and management, the sustainability of our natural resource of wild salmon and sea trout stocks in Wales."</p>                                                                                                                                                                                                                                                                                                                                                                                                     | <p>The Drought Plan should ensure the protection of salmon and sea trout in Wales.</p>                                                                                                                           |
| Natural Resources Wales (2017) <i>Drought Plan</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                  |
| <p>The Drought Plan sets out the measures that Natural Resources Wales will take to identify, monitor and manage activities in the build-up to, during and following a drought.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p>The Drought Plan should be prepared in accordance with the Natural Resources Wales Drought Plan.</p>                                                                                                          |
| Natural Resources Wales (2024) <i>Water Company Drought Plan – technical guidance</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                  |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                  |
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| This guidance has been produced to help water undertakers identify how they intend to manage a drought. It is designed to help water undertakers write a plan that complies with all the relevant statutory requirements and Welsh Government policy. If water undertakers decide to take a different approach to those in the guidelines it should clearly demonstrate they are still fulfilling their obligations. The technical guideline, consulted with the Welsh Government, the Environment Agency, Ofwat, Natural England, and water undertakers, identifies the importance of engaging with Natural Resources Wales as early as possible to avoid unnecessary delays later in the process. | The Drought Plan should be prepared in accordance with the requirements of the technical guide.                                                                                                                                  |
| Natural Resources Wales (2021) <i>Shoreline Management Plans: Supplementary guidance for their ongoing maintenance and delivery – Wales</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                  |
| This document provides guidance on refreshing Shoreline Management Plans (SMPs) and supplements the existing 2006 SMP guidance (Defra 2006). It is aimed at any organisation involved in SMP governance and maintenance, particularly, Coastal Groups and the Welsh Coastal Group Forum (WCGF). This document aims to support these organisations in accommodating and dealing with changes that have arisen since the SMPs were produced, through recommendations and guidance rather than explicit instruction.                                                                                                                                                                                   | The Drought Plan should be prepared in accordance with the requirements of the supplementary guidance.                                                                                                                           |
| Natural Resources Wales - National <i>Peatland Action Programme</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                  |
| <p>This is a 5-year plan for peatland restoration in Wales. The programme has six priority areas:</p> <ul style="list-style-type: none"> <li>• Peatland erosion</li> <li>• Peatland drainage</li> <li>• Sustainable management of blanket peats</li> <li>• Sustainable management of lowland peats</li> <li>• The restoration of afforested peatlands</li> <li>• The gradual restoration of our highest carbon-peatlands</li> </ul>                                                                                                                                                                                                                                                                 | The Drought Plan and the SEA should ensure that peatland areas in Wales are protected and maintained.                                                                                                                            |
| Natural Resources Wales - <i>Our corporate plan to 2030: nature and people thriving together</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                  |
| <p>This plan sets out Wales' vision of nature and people thriving together. The collective action put forward in this plan pertains to:</p> <ul style="list-style-type: none"> <li>• nature's recovery</li> <li>• resilience to climate change</li> <li>• minimising pollution</li> </ul> <p>through the sustainable management of our natural resources.</p>                                                                                                                                                                                                                                                                                                                                       | The Drought Plan should align with the NRW's goal to ensure the sustainable management of resources in Wales.                                                                                                                    |
| Ofwat (2008) <i>Water Supply and Demand Policy</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                  |
| Summarised the key areas of water supply and demand, focusing on water efficiency, leakage, metering, and climate change.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>The Drought Plan should ensure it balances demand and supply issues.</p> <p>The SEA framework should ensure that consideration is given to the socio-economic and environmental impact of any demand and supply policies.</p> |
| Ofwat (2016) <i>Water 2020</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                  |
| This document sets out Ofwat's decisions on the design of its water and wastewater services regulatory framework in England and Wales. The approach aims to deliver the following benefits:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | The Drought Plan should take account of the regulatory framework.                                                                                                                                                                |



| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                             |
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| <ul style="list-style-type: none"> <li>Greater customer engagement and understanding</li> <li>A sustainable investment model and a fair balance of risk and reward</li> <li>Choice where possible, and ensuring markets are effective for customers</li> <li>A focus on the long-term, targeted and risk-based</li> </ul> <p>Support for sustainable improvements in the environment</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | The SEA assessment should include criteria relating to the provision of water to customers and environmental protection.                                                                                                                                                    |
| <b>Ofwat (2017) <i>Resilience in the Round</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                             |
| <p>The report identifies that the water sector has historically invested in options which enhance capacity, especially operational capacity and that whilst additional capacity has an important role in delivering resilience against some threats, companies should start looking at a wider set of factors in order to deliver “smarter” options for the future, including:</p> <ul style="list-style-type: none"> <li>Addressing multiple threats through a single intervention. For example, enhancing network connectivity to reduce the number of customers reliant a single source of supply. This type of approach can provide water supply resilience to multiple threats such as outages, drought and contamination.</li> <li>Recognising that any intervention will have its own embedded vulnerabilities to future threats. Understanding the vulnerabilities of option types will be critical to planning respective roles in delivering the planned level of resilience. For example, water transfers between areas of surplus and deficit can be a good options but might be vulnerable to wider scale drought impacts and/or contamination.</li> </ul> | The Drought Plan should consider its approach to resilience in the round.                                                                                                                                                                                                   |
| <b>JNCC and Defra (2012) <i>UK Post-2010 Biodiversity Framework</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                             |
| <p>The framework sets out UK priorities for work on the Convention on Biological Diversity, and follows on from the 1994 UK Biodiversity Action Plan. It sets out a vision that, ‘by 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people’. The goals and activities to meet this aim are grouped under the categories of International / European context; facilitating and contributing to common country approaches and solutions; evidence provision; and reporting.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>The Drought Plan should support the protection and enhancement of biodiversity.</p> <p>The SEA assessment should include criteria relating to the protection of species and habitats.</p>                                                                                |
| <b>Valuing Our Environment Partnership (2010) <i>Valuing the Welsh Historic Environment</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                             |
| <p>This document is a review and does not contain objectives or targets as such. It can be assumed however that the protection and enhancement of the historic environment is a key objective.</p> <p>It showed that in 2010 the historic environment contributes approximately £840 million to Wales's gross value added, some £1.8 billion in respect of output and supports 30,000 full time equivalent jobs.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>The Drought Plan should consider effects of options on historic environment assets.</p> <p>The SEA should include a guide question relating to protecting and enhancing the historic environment.</p>                                                                    |
| <b>Water UK (2022) <i>Water 2050: A White Paper</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                             |
| <p>Water UK developed this White Paper on behalf of 16 water companies that operate in England. The White Paper describes:</p> <ul style="list-style-type: none"> <li>Future challenges, opportunities and gaps and the priority areas for change</li> <li>Our Vision for 2050</li> <li>Why and what we need to change: Delivering more environmental impact more efficiently</li> <li>Why and what we need to change: Protecting long-term customer interests through the right investments at the right time</li> <li>How we will make the change happen</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <p>The Drought Plan should ensure that future water resources are resilient, efficient and customer focused.</p> <p>The SEA should consider resilience to climate change and should consider the human environment to ensure the Drought Plan remains customer focused.</p> |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| <b>Waterwise (2022) <i>Water Efficiency Strategy for the UK</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| The document sets out a strategy for achieving the vision of a water efficient UK. It suggests policy, regulatory and practical actions that can help in the process of achieving water efficiency.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>The Drought Plan should take into account its possible impacts on water efficiency and aim to improve water efficiency.</p> <p>The SEA objectives should reflect the need improve water efficiency.</p>                                                                                                                                                                                                                                                                                                                         |
| <b>Welsh Government (1998) <i>Technical Advice Note 14: Coastal Planning</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| TAN 14 seeks to protect the coastline in relation to development, landscape, biodiversity and recreation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>The Drought Plan should take into account its effects on coastal areas.</p> <p>The SEA assessment should take into account the effects of the options on the coast where relevant.</p>                                                                                                                                                                                                                                                                                                                                          |
| <b>Welsh Government (2006) <i>Environment Strategy for Wales</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <p>The Environment Strategy for Wales sets out the challenges and vision for Wales up to 2026. It covers themes under climate change; resource use; biodiversity, landscapes and seascapes; local environment; and environmental hazards. The priorities identified in the Strategy are to</p> <ul style="list-style-type: none"> <li>- minimise greenhouse gas emissions and adapt to the impacts of climate change;</li> <li>- conserve and enhance biodiversity;</li> <li>- monitor and regulate known and emerging environmental hazards;</li> <li>- tackle unsustainable practices, like waste production and disposal; and</li> </ul> <p>conserve and enhance land and sea, built environment, natural resources and heritage, developing and using them in a sustainable and equitable way and for the long term benefit of the people of Wales.</p>                                                                                                                                                                                                                 | <p>The Drought Plan should aim to contribute to the Environment Strategy for Wales.</p> <p>The SEA assessment should include effects of options on biodiversity, marine, flood and water management, the historic environment, people and the environment and environmental quality.</p>                                                                                                                                                                                                                                           |
| <b>Welsh Government (2008) <i>One Wales One Planet: The Sustainable Development Scheme for Wales</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <p>One Wales One Planet seeks to build on the two previous Sustainable Development Schemes. It sets out proposals to promote sustainable development, how the Welsh Government will make sustainable development a reality for people in Wales, and the benefits that people will see from this, particularly in less well-off communities.</p> <p>The strategy states that the Welsh Government is committed to working in partnership with others and notes that businesses can:</p> <ul style="list-style-type: none"> <li>• Develop resource efficiency within the organisation and through supply chains, improving productivity and competitiveness;</li> <li>• Reduce waste;</li> <li>• Develop environmental and sustainability policies and targets;</li> <li>• Monitor performance and resource use and report publicly on them;</li> <li>• Engage with the workforce in both adopting sustainable practices and encouraging employees to become sustainable champions in their own communities;</li> <li>• Engage with and support local communities.</li> </ul> | <p>The Drought Plan should consider effects of options on sustainable development in Wales.</p> <p>The SEA should include guide questions relating to improving resource efficiency, reducing waste, monitoring and public reporting, encouraging sustainable practices among the workforce and engaging with and supporting local communities. The SEA should include proposals for monitoring the effects of the Drought Plan on the environment and sustainability and could utilise targets that arise from this document.</p> |
| <b>Welsh Government (2008) <i>People, Places, Futures: The Wales Spatial Plan 2008 Update</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                  |
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| <p>The <i>Wales Spatial Plan</i> provides the context and direction of travel for local development plans and the work of local service boards. The 2008 update brings the <i>Wales Spatial Plan</i> into line with <i>One Wales</i>, and gives status to the area work which has developed since 2006. The key themes of the update (and the <i>Wales Spatial Plan</i> before it) are set out below:</p> <p><b>Building Sustainable Communities</b></p> <p>Our future depends on the vitality of our communities as attractive places to live and work. We need to reduce inequalities between communities whilst retaining their character and distinctiveness.</p> <p><b>Promoting a Sustainable Economy</b></p> <p>We need an innovative, high value-added economy for Wales which utilises and develops the skills and knowledge of our people; an economy which both creates wealth and promotes the spreading of that prosperity throughout Wales; an economy which adds to the quality of life as well as the standard of living and the working environment.</p> <p><b>Valuing our Environment</b></p> <p>The quality of our natural environment has an intrinsic value as a life support system, but also promotes wellbeing for living and working and contributes to our economic objectives. Safeguarding and protecting our natural and historic assets, and enhancing resilience to address the challenges of climate change, will enable us to attract people to our communities and provide the wellbeing and quality of life to encourage them to stay and preserve the foundations for the future.</p> <p><b>Achieving Sustainable Accessibility</b></p> <p>We will develop access in ways that protect the environment, encourage economic activity, widen employment opportunities, ensure quality services and integrate the social, environmental and economic benefits that travel can have.</p> <p><b>Respecting Distinctiveness</b></p> <p>A cohesive identity which sustains and celebrates what is distinctive about Wales, in an open and outward-looking way, is central to promoting Wales to the World, as well as to our future economic competitiveness and social and environmental wellbeing.</p> | <p>The Drought Plan should have regard to the key themes of the <i>Wales Spatial Plan Update</i>.</p> <p>The SEA objectives should cover the key themes set out in the <i>Wales Spatial Plan Update</i>.</p>     |
| Welsh Government (2008-2015) <i>Welsh Rural Development Programme 2014-2020</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                  |
| <p>The Programme was adopted by the European Commission in May 2015. It is a 7 year investment programme supporting a wide range of activities which contribute to the following objectives:</p> <ul style="list-style-type: none"> <li>• fostering the competitiveness of agriculture;</li> <li>• ensuring the sustainable management of natural resources, and climate action;</li> <li>• achieving a balanced territorial development of rural economies and communities, including the creation and maintenance of employment.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>The Drought Plan should consider the effect of options on rural areas.</p> <p>The SEA assessment should note where options will have significant effects on rural areas.</p>                                  |
| Welsh Government (2009) <i>Technical Advice Note 5: Nature Conservation and Planning</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                  |
| <p>Technical Advice Note 5 sets out how the planning system should contribute to protecting and enhancing biodiversity and geological conservation. It stipulates that the planning system should:</p> <ul style="list-style-type: none"> <li>- work to achieve nature conservation objectives through a partnership between local planning authorities, voluntary organisations, developers, landowners and other key stakeholders;</li> <li>- integrate nature conservation into all planning decisions looking for development to deliver social, economic and environmental objectives together over time;</li> <li>- ensure that the UK's international and national obligations for site, species and habitat protection are fully met in all planning decisions;</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>The Drought Plan should seek to protect and enhance biodiversity and geodiversity.</p> <p>SEA objectives should reflect the need to conserve and, where possible, enhance, biodiversity and geodiversity.</p> |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                |
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| <ul style="list-style-type: none"> <li>- look for development to provide a net benefit for biodiversity conservation with no significant loss of habitats or populations of species, locally or nationally;</li> <li>- help to ensure that development does not damage, or restrict access to, or the study of, geological sites and features or impede the evolution of natural processes and systems especially on rivers and the coast; and</li> <li>- plan to accommodate and reduce the effects of climate change by encouraging development that will reduce damaging emissions and energy consumption and that help habitats and species to respond to climate change.</li> </ul>                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                |
| Welsh Government (2010) <i>Climate Change Strategy for Wales</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                |
| <p>The Climate Change Strategy for Wales and associated action plan sets out the Welsh Government's policy intentions in relation to climate change and expands on the commitments set out in One Wales.</p> <p>The strategy re-iterates the One Wales commitments to 3 per cent annual carbon reductions and sets out, that by 2020, the Welsh Government expect to see:</p> <ul style="list-style-type: none"> <li>- Businesses have reduced energy costs and emissions;</li> <li>- Employees actively engaged in reducing emissions from their workplaces;</li> <li>- Consumers demanding low carbon goods and services and concerned about sustainability performance of businesses;</li> <li>- Growth of social enterprises and community businesses providing low carbon goods and services locally;</li> </ul> <p>Core businesses operating, and people employed, in businesses that provide low carbon goods and services.</p> | <p>The Drought Plan should incorporate climate change mitigation and adaptation measures, e.g. reducing carbon emissions.</p> <p>The SEA should include a guide question relating to mitigation and adaptation to climate change.</p>                                                          |
| Welsh Government (2010) <i>National Transport Plan</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                |
| <p>The Plan sets out five strategic transport priorities for the next 5 years:</p> <ul style="list-style-type: none"> <li>- Reducing greenhouse gas emissions and other environmental impacts;</li> <li>- Integrating local transport;</li> <li>- Improving access between key settlements and sites;</li> <li>- Enhancing international connectivity;</li> <li>- Increasing safety and security.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>The Drought Plan should consider any transport-related implications arising from the options and seek to reflect the transport hierarchy where possible.</p> <p>The SEA assessment should include an objective on improving and/or integrating transport and reducing greenhouse gases.</p> |
| Welsh Government (2010) <i>Towards Zero Waste, One Wales: One Planet – Overarching Waste Strategy Document for Wales</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                |
| <p>Towards Zero Waste is the overarching waste strategy for Wales. The key outcomes that the Strategy aims to achieve are:</p> <ul style="list-style-type: none"> <li>- a sustainable environment in which we reduce the impact of waste in Wales to within our environmental limits by 2050;</li> <li>- a Fair and Just Society, in which citizens can achieve their full human potential and contribute to the wellbeing of Wales through actions on waste prevention, reuse and recycling;</li> <li>- a Prosperous Society With a sustainable, resource efficient economy.</li> </ul> <p>The strategy sets out a long-term aim of zero waste by 2050 and a medium term aim of achieving a high recycling society by 2025. This is supported by a range of recycling and other waste management targets including in relation to commercial and industrial waste.</p>                                                                | <p>The Drought Plan should promote waste reduction, reuse and recycling ahead of landfill disposal.</p> <p>SEA objectives should reflect aspirations of the Strategy.</p>                                                                                                                      |
| Welsh Government (2010) <i>The Biodiversity Framework for Wales</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                |
| <p>This document sets out to provide a delivery mechanism for a number of biodiversity related Outcomes set out in the Wales Environment Strategy. It defines the importance of biodiversity, describing the current situation in Wales. It considers policy and legislative drivers at a European, British</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p>This document highlights a number of bodies with whom DCWW may need to work to ensure</p>                                                                                                                                                                                                   |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                 |
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| and Welsh scale and sets out the roles and responsibilities of the groups and bodies responsible for halting and ultimately reversing the loss of biodiversity in Wales.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | development of the Drought Plan contributes to protecting and enhancing biodiversity.                                                                                                                                                                                                                                                                           |
| <b>Welsh Government (2011) <i>Welsh Government Policy Statement: Preparing for a Changing Climate</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                 |
| <p>This Policy Statement sets out how the Welsh Government will implement relevant provisions of the Climate Change Act 2008. It provides technical advice on how to assess climate risks and how to develop adaptation plans and in this context DCWW is identified as a key reporting authority.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>The Drought Plan should incorporate climate change mitigation and adaptation measures where appropriate.</p> <p>The SEA should include a guide question relating to mitigation and adaptation to climate change. Monitoring recommendations in the SEA should reflect the 3 per cent year on year emission reduction target set by the Welsh Government.</p> |
| <b>Welsh Government (2011) <i>National Strategy for Flood and Coastal Erosion Risk Management in Wales</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                 |
| <p>The Strategy sets out the Welsh Government's policies on flood and coastal erosion risk management, and establishes a delivery framework up to 2017.</p> <p>The Strategy sets four overarching objectives for managing flood and coastal erosion risk in Wales:</p> <ul style="list-style-type: none"> <li>reducing the consequences for individuals, communities, businesses and the environment from flooding and coastal erosion;</li> <li>raising awareness of and engaging people on flood and coastal erosion risk;</li> <li>providing an effective and sustained response to flood and coastal erosion events; and</li> <li>prioritising investment in the most at risk communities.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p>The Drought Plan should contribute to the reduction in coastal erosion where possible.</p> <p>The SEA should include an objective/guide question relating to flooding.</p>                                                                                                                                                                                   |
| <b>Welsh Government (2012) <i>Energy Wales: A Low Carbon Transition</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                 |
| <p>Energy Wales and the supporting delivery plan set out what the Welsh Government intends to do to drive the change to a sustainable, low carbon economy for Wales. The Welsh Government commits to:</p> <ul style="list-style-type: none"> <li>Engage and support businesses that help to achieve Wales's low carbon ambition;</li> <li>Ensure that regulatory processes are as simplified and efficient as they can be and provide businesses with clarity and stability;</li> <li>Engage the UK Government to ensure that there is a credible framework for capital investment to support the transition to a low carbon economy;</li> <li>Support vital energy intensive industries in the transition to a low carbon economy;</li> <li>Pursue energy efficiency;</li> <li>Focus on low carbon sources of energy generation and approaches which will help to deliver lower overall emissions; and</li> <li>Assist the most vulnerable in Welsh society and work to ensure that costs of reform do not fall disproportionately on poor households.</li> </ul> <p>The delivery plan also sets out key delivery themes around low carbon energy, Anglesey Energy Island, energy efficiency and distributed energy generation.</p> | <p>The Drought Plan should seek to incorporate low carbon energy and energy efficiency.</p> <p>The SEA should include a guide question relating to climate change mitigation.</p>                                                                                                                                                                               |
| <b>Welsh Government (2012) <i>Historic Environment Strategy for Wales</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                 |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                      |
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| This strategy summarises the areas which the Welsh Government will prioritise for action, and aims to protect Wales' heritage whilst encouraging public access, enjoyment and participation. The Strategy sets out the role of the historic environment in delivering tangible social, economic and environmental benefits for Welsh communities. It also aims to further develop the economic role of heritage in Wales and maximise educational, training and leisure opportunities.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | The Drought Plan should protect and enhance the historic environment.                                                                                                                                                                                                                |
| Welsh Government (2013) <i>Partnership for Growth: The Welsh Government Strategy for Tourism 2013 – 2020</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                      |
| <p>The strategy identifies the priorities to deliver a prosperous and competitive tourism industry in Wales.</p> <p>It sets out how Welsh tourism will be promoted and communicated more effectively and how investment will be directed to improve quality and choice for the consumer.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>The Drought Plan could take account of the benefits that tourism can bring to Wales.</p> <p>The SEA should include assessment criteria relating the importance of tourism and/or recreation.</p>                                                                                  |
| Welsh Government (2015) <i>Water Strategy for Wales</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                      |
| <p>This Strategy sets out our long-term policy direction in relation to water. The aim is to ensure we have a more integrated and sustainable approach to managing our water and associated services in Wales. This Strategy has been developed within this context and will contribute to the implementation of our wider natural resource management policy.</p> <p>A more integrated approach to the way water resources in Wales are managed will help to promote the coordinated management of water, land and related resources. This in turn will enable us to maximise economic and social benefits, including tackling poverty in an equitable way while protecting vital ecosystems and the environment. The Strategy aims ensure the long-term needs of a sustainable and resilient environment and that there are sufficient, reliable water resources and waste water services available in Wales. This approach will also drive green growth by providing an essential resource for businesses, as well as providing new opportunities for employment.</p>               | <p>The Drought Plan will have a key role in contributing to the wider objectives of the Strategy.</p> <p>The SEA should include objectives/guide questions relating to sustainable resource use.</p>                                                                                 |
| Welsh Government (2015) <i>Well-being of Future Generations (Wales) Act 2015 and National indicators and national milestones for Wales</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                      |
| <p>The Act includes 7 goals that all public bodies should work towards:</p> <ul style="list-style-type: none"> <li>• A prosperous Wales</li> <li>• A resilient Wales</li> <li>• A healthier Wales</li> <li>• A more equal Wales</li> <li>• A Wales of cohesive communities</li> <li>• A Wales of vibrant culture and thriving Welsh Language</li> <li>• A globally responsible Wales</li> </ul> <p>The Act establishes a statutory Future Generations Commissioner for Wales, whose role is to act as a guardian for the interests of future generations in Wales, and to support the public bodies listed in the Act to work towards achieving the well-being goals.</p> <p>The Act also establishes Public Services Boards (PSBs) for each local authority area in Wales. Each PSB must improve the economic, social, environmental and cultural well-being of its area by working to achieve the well-being goals.</p> <p>The National indicators and national milestones for Wales guidance sets out 50 national indicators and 17 milestones to be achieved in Wales by 2050/</p> | <p>The Drought Plan should consider how it can contribute to the seven well-being goals set out in the Act and should take into consideration the national indicators and milestones to achieve these goals.</p> <p>The SEA Framework should reflect the seven well-being goals.</p> |
| Welsh Government (2015) <i>Nature Recovery Plan for Wales</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                      |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                      |
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| <p>The Nature Recovery Plan for Wales is aimed at addressing the underlying causes of biodiversity loss by:</p> <ul style="list-style-type: none"> <li>• putting nature at the heart of decision-making</li> <li>• increasing the resilience of the natural environment</li> <li>• taking specific action for habitats and species.</li> </ul> <p>It sets out how Wales will deliver the commitments of the UN Convention on Biological Diversity and the EU Biodiversity Strategy to halt the decline in Wales' biodiversity by 2020 and then reverse that decline.</p> <p>The objectives of the plan are to:</p> <ul style="list-style-type: none"> <li>• Engage and support participation and understanding to embed biodiversity throughout decision making at all levels.</li> <li>• Safeguard species and habitats of principal importance and improve their management</li> <li>• Increase the resilience of the natural environment by restoring degraded habitats and habitat creation</li> <li>• Tackle key pressures on species and habitats</li> <li>• Improve our evidence, understanding and monitoring</li> <li>• Put in place a framework of governance and support for delivery</li> </ul> | <p>The Drought Plan should seek to protect and enhance biodiversity.</p> <p>SEA objectives should reflect the need to conserve and, where possible, enhance biodiversity.</p>                        |
| Welsh Government (2016) <i>Technical Advice Note 12: Design</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                      |
| <p>Technical Advice Note 12 sets out the Welsh Government's land use planning policy in respect of promoting sustainability through good design. It advocates a holistic approach to design that considers:</p> <p>Movement - promoting sustainable means of travel;</p> <p>Access- ensuring access for all;</p> <p>Character - sustaining or enhancing local character, promoting legible development, promoting a successful relationship between public and private space, promoting quality, choice and variety, promoting innovative design;</p> <p>Community safety - ensuring attractive, safe public spaces and security through natural surveillance;</p> <p>Environmental sustainability - achieving efficient use and protection of natural resources, enhancing biodiversity and designing for change.</p>                                                                                                                                                                                                                                                                                                                                                                                      | <p>The Drought Plan should promote good design in the development if any new facilities are required as part of plan measure.</p> <p>SEA objectives should include the promotion of good design.</p> |
| Welsh Government (2021) <i>Planning Policy Wales (Edition 12)</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                      |
| <p>Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the national planning policy framework for Wales. PPW, the TANs, MTANs and policy clarification letters comprise national planning policy. The primary objective of PPW is to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales, as required by the Planning (Wales) Act 2015, the Well-being of Future Generations (Wales) Act 2015 and other key legislation and resultant duties such as the Socio-economic Duty.</p>                                                                                                                                                                                                                                                                                                                                                                                         | <p>Measures recommended in the Drought Plan will need to confirm to LDPs.</p> <p>The SEA objectives should reflect the Welsh Government's commitments to sustainable development.</p>                |
| Welsh Government (2016) <i>Historic Environment (Wales) Act 2016 (soon to be superseded)</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                      |
| <p>The Act improves the existing systems for the protection and sustainable management of the Welsh historic environment. It also gives more effective protection to listed buildings and scheduled monuments and enhances existing mechanisms for the sustainable management of the historic environment. The Act also creates new measures that enables authorities to halt works if protected buildings or monuments are under threat from unauthorised activities and to take action against those who have damaged or destroyed monuments.</p> <p><i>The Historic Environment (Wales) Act 2023 was introduced into Senedd Cymru on 4 July 2022, passed on 28 March 2023 and received Royal Assent on 14 June 2023. Although the Act has received Royal Assent, it will not come into force until supporting secondary legislation has been</i></p>                                                                                                                                                                                                                                                                                                                                                     | <p>The Drought Plan should have regard to the requirements of the Act.</p> <p>The SEA assessment should include criteria relating to the protection of the historic environment.</p>                 |



| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                       |
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| <i>made and guidance and administrative documents have been revised and updated to reflect its passage. It is expected that the Act will come into force in the latter part of 2024.</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                       |
| Welsh Government (2016) <i>The Environment (Wales) Act 2016</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                       |
| <p>The overarching aims of the Act are to enable Wales' resources to be managed in a more proactive, sustainable and joined-up way and to establish the legislative framework necessary to tackle climate change.</p> <p>Some of the specific provisions in the Act include:</p> <ul style="list-style-type: none"><li>• Helping to plan and manage Wales' natural resources at a national and local level, through a State of Natural Resources Report, a National Natural Resources Policy and area statements.</li><li>• Providing Natural Resources Wales (NRW) with a general purpose that aligns fully with the statutory principles for the sustainable management of natural resources.</li><li>• Providing NRW with powers to undertake land management agreements and experimental schemes.</li><li>• Providing public authorities with a reshaped requirement to seek to maintain and enhance biodiversity and promote resilience of ecosystems.</li><li>• Placing statutory emission reduction targets and carbon budgeting to support their delivery.</li><li>• Enabling improvements to the existing scheme for single use carrier bags.</li><li>• Providing the Welsh Ministers with powers to take action to achieve higher levels of recycling for business waste, food waste treatment and energy recovery.</li><li>• Clarifying the law for a number of existing environmental regulatory regimes including marine licensing, shellfisheries management, land drainage and flood risk management.</li></ul> | <p>The Drought Plan should enhance biodiversity, promote resilience in ecosystems and maintain and enhance biodiversity.</p> <p>The SEA framework should include consideration of resilience in ecosystems and the maintenance and enhancement of biodiversity and resource use.</p>                                                                  |
| Welsh Government (2018) <i>Valued and Resilient: The Welsh Government's Priorities for Areas of Outstanding Natural Beauty and National Parks</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                       |
| <p>This statement provides the goals for National landscapes in Wales. These goals include:</p> <ul style="list-style-type: none"><li>• Valued places</li><li>• Resilient environments</li><li>• Resilient communities</li><li>• Resilient ways of working</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>The Drought Plan should maintain or enhance the national landscapes in Wales.</p> <p>The SEA framework should seek to ensure that the national landscapes are not adversely impacted by the implementation of the Drought Plan.</p>                                                                                                                |
| Natural Resources Wales (2020) <i>The State of Natural Resources Report (SoNaRR)</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                       |
| <p>The report sets out the states of Wales' natural resources. It assesses the extent to which natural resources in Wales are being sustainably managed and recommends a proactive approach to building resilience. The report identifies risks and threats and opportunities for integrated solutions that provide multiple benefits (social, cultural, environmental and economic).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <p>The Drought Plan should have regard to opportunities to address risks and threats identified in the report and identify integrated solutions.</p> <p>The SEA should have regard to the risks, threats and opportunities identified in the report and the extent to which opportunities for integrated solutions can be incorporated in the DP.</p> |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |
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| <b>Natural Resources Wales (2020) <i>Salmon and sea trout plan of action for Wales</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                              |
| This plan provides details of the actions required to restore healthy and more sustainable populations of salmon and sea trout in Welsh rivers.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p>The SEA should seek to maintain or enhance the quality of habitats and biodiversity.</p> <p>The impacts of the Drought Plan on populations of salmon and sea trout should be addressed.</p>               |
| <b>Natural Resources Wales (2023) <i>Natural Resources Wales Flood Risk Management Plan</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                              |
| <p>The Flood Risk Regulations (2009) set out a framework for effective management of flood risk in England and Wales. NRW has a duty to identify areas at risk of flooding via a Preliminary Flood Risk Assessment (PFRA) and then to produce Flood Hazard and Flood Risk Maps. NRW then has a duty to produce a FRMP outlining its intended objectives and measures for managing flood risk identified within these earlier phases. This FRMP is therefore fulfilling our requirements under section 25 of the Flood Risk Regulations (2009).</p> <p>This Flood Risk Management Plan (FRMP) covers all of Wales and provides information on the scale of flood risk, as well as NRW's priorities in managing the risk of flooding, and measures that we propose to take, over the next six years. This FRMP covers flooding from rivers, reservoirs and the sea. It does not include flooding from surface water and smaller watercourses, for which Lead Local Flood Authorities (LLFAs) have powers and take the lead.</p>                                                                                                                                            | The SEA should seek to ensure that flood risk in Wales is not adversely affected by the implementation of the DP.                                                                                            |
| <b>Natural Resources Wales (2021) <i>Compliance Assessment of Welsh River SACs against Phosphorus Targets</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                              |
| Provides a review of the conservation objectives for the nine river Special Areas of Conservation (SACs) in Wales, notably with respect to phosphorus. These SACs are designated to conserve various habitats and species in Annexes I and II of the Habitats Directive.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | The SEA should seek to maintain or enhance the quality of designated SACs in line with national targets.                                                                                                     |
| <b>Welsh Government (2016) <i>Guiding Principles for Developing Water Resources Management Plans</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                              |
| The Guiding Principles set out the Welsh Government's expectations in terms of the role and content of WRMPs. The link is also made with recent legislation (including the Environment (Wales) Act and the Well-being of Future Generations (Wales) Act 2015. The process for preparing WRMPs is also set out in the document.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | The Drought Plan should be cognisant of the Guiding Principles for WRMPs.                                                                                                                                    |
| <b>Welsh Government (2017) <i>Draft Welsh National Marine Plan</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                              |
| <p>This draft plan sets out how the Welsh Government will achieve sustainable development in the Welsh marine area through the sustainable management of marine natural resources. It covers both Welsh inshore and offshore waters and sets out the following vision, which will be achieved through the plan's objectives and policies:</p> <ul style="list-style-type: none"> <li>During the 20 year view taken by the plan, Welsh seas are clean, healthy, safe, productive and biologically diverse: <ul style="list-style-type: none"> <li>Through an ecosystem approach, our seas are healthy and resilient and support a sustainable and thriving economy.</li> <li>Through access to and enjoyment of the marine environment, health and wellbeing are improving.</li> <li>Through Blue Growth more jobs and wealth are being created which is helping coastal communities become more resilient, prosperous and equitable with a vibrant culture.</li> <li>Through the responsible deployment of low carbon technologies, the Welsh marine area is making a strong contribution to energy security and climate change emissions targets</li> </ul> </li> </ul> | <p>The Drought Plan should take into account its effects on coastal areas.</p> <p>The SEA assessment should take into account the effects of the actions on the coast/marine environment where relevant.</p> |
| <b>Welsh Government (2024) <i>The Welsh Government Guiding Principles for Developing Water Undertaker Drought Plans for 2025. Draft.</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                              |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                             |
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| The Guiding Principles set out the Welsh Government's expectations in terms of the role and content of drought plans. The link is also made with recent legislation (including the Environment (Wales) Act 2016 and the Well-being of Future Generations (Wales) Act 2015. The process for preparing and consulting on drought plans is also set out in the document.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | The Drought Plan will need to have regard to the Guiding Principles as a key over-arching document.                                                                                                                                                         |
| Welsh Government (2017) <i>Natural Resources Policy</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                             |
| The policy supports the Environment (Wales) Act 2016, which places a duty on Welsh ministers to prepare, publish and implement a statutory National Natural Resource Policy (NNRP). With regards to water and flooding, the policy includes a commitment to supporting the use of innovative approaches to water quantity and drought planning which might involve new technological applications to access smaller water bodies and create a more dispersed supply network. It also commits to Reform the abstraction licencing system to ensure that we have robust and resilient water resources.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>The Drought Plan should have regard to the priority areas of the policy statement.</p> <p>The SA should include assessment criteria relating to protection and enhancement of the environment, flooding and designated sites.</p>                        |
| Welsh Government (2017) <i>The Drought Plan (Wales) Direction 2017</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                             |
| <p>The Drought Plan (Wales) Direction 2017 specifies the following additional matters to be addressed in drought plans:</p> <ul style="list-style-type: none"> <li>• The management structure that the water undertaker will put in place during a drought and an explanation of how the management structure will manage, communicate and make decisions during a drought</li> <li>• The magnitude and duration of droughts for which the drought plan has been tested</li> <li>• The permits and approvals that the water undertaker expects to need in order to implement the drought management measures</li> <li>• The discussions that have occurred between the water undertaker and the bodies responsible for granting those permits and approvals and the arrangements for discussions with those bodies during the onset, duration and abatement of all droughts covered by the drought plan</li> <li>• The measures that may be needed to mitigate any adverse effect on the environment resulting from the implementation of a drought management measure</li> <li>• The permits and approvals that the water undertake expects to need in order to implement those mitigation measures; and</li> <li>• The compensation that may need to be made as a result of the implementation of a drought management measure.</li> </ul> | The Drought Plan will need to be prepared in accordance with the Direction.                                                                                                                                                                                 |
| Welsh Government (2018) <i>Priorities for the Historic Environment of Wales</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                             |
| This document outlines Welsh Government's plans to protect our unique historic sites, in partnership with others, and to encourage more people to visit them.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | The Drought Plan and SEA should consider the impact of any proposed developments on the historic environment of Wales.                                                                                                                                      |
| Welsh Government (2018) <i>Woodlands for Wales: The Welsh Government's Strategy for Woodlands and Trees</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                             |
| This strategy promotes sustainable forest management to derive multiple ecosystem services and benefits. The document stresses the importance that such resources play in maintaining and enhancing the natural environment of Wales.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p>The SEA should have an objective/guide question related to protecting the natural environment and make mention to the protection of trees.</p> <p>The Drought Plan should aim to contribute to the protection of woodlands and trees where possible.</p> |
| Welsh Government (2019) <i>Prosperity for All: A Low Carbon Wales</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                             |
| This document seeks to work with the other documents in the Prosperity for All series but is focused upon reducing the carbon footprint of Wales. This would be achieved through encouraging sustainable development and using more sustainable technologies.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | The SEA should have objectives relating to economic growth and sustainable development.                                                                                                                                                                     |
| Welsh Government (2019) <i>Welsh National Marine Plan</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                             |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                              |
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| <p>The Plan sets out how Welsh Government will achieve sustainable development in the Welsh marine area through the sustainable management of marine natural resources. It covers both Welsh inshore and offshore waters and sets out the following vision, which will be achieved through the plan's objectives and policies:</p> <ul style="list-style-type: none"> <li>• During the 20 year view taken by the plan, Welsh seas are clean, healthy, safe, productive and biologically diverse:</li> <li>• Through an ecosystem approach, our seas are healthy and resilient and support a sustainable and thriving economy.</li> <li>• Through access to and enjoyment of the marine environment, health and wellbeing are improving. • Through Blue Growth more jobs and wealth are being created which is helping coastal communities become more resilient, prosperous and equitable with a vibrant culture.</li> <li>• Through the responsible deployment of low carbon technologies, the Welsh marine area is making a strong contribution to energy security and climate change emissions targets.</li> </ul> | <p>The Drought Plan should take into account its effects on coastal areas.</p> <p>The SEA assessment should take into account the effects of the actions on the coast/marine environment where relevant.</p> |
| Welsh Government (2020) <i>Agriculture (Wales) White Paper (2020)</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                              |
| <p>This white paper outlines the importance of farming to the Welsh economy whilst also being a source of locally grown food. It highlights the difficulties of Brexit and trade barriers with the EU, whilst also establishing a need to de-carbon the farming industry as much as possible but not in a way that compromises it.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <p>The SEA should have objectives relating to the need to protect rural agriculture.</p>                                                                                                                     |
| Welsh Government (2020) <i>Historic Environment and Climate Change in Wales</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                              |
| <p>Some of Wales' most iconic historic sites and landscapes are threatened by warmer temperatures, rising sea levels, changing rainfall patterns and more frequent extreme weather events.</p> <p>The plan highlights the need for collaboration and action across all sectors that will improve understanding; build adaptive capacity and increase the resilience of the historic environment – so that it can be enjoyed by future generations.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <p>The Drought Plan and SEA should consider the impact of any proposed developments on climate change and the historic environment of Wales.</p>                                                             |
| Welsh Government (2020) <i>National Strategy for Flood and Coastal Erosion Risk Management in Wales</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                              |
| <p>This Strategy sets out how Welsh Government intend to manage the risks from flooding and coastal erosion across Wales over the next 10 years, whilst strengthening and clarifying roles and responsibilities. It sets out the policies and direction for all Welsh Flood Risk Management Authorities to follow, with measures to explain how this will be achieved, which can be considered as its action plan.</p> <p>The Welsh Government considers FCERM as a priority area, this is set out through the Strategy. The aim of the strategy is to Reduce the risk to people and communities from flooding and coastal erosion and the strategy contains five objectives:</p> <ol style="list-style-type: none"> <li>a) Improving our understanding and communication of risk</li> <li>b) Preparedness and building resilience</li> <li>c) Prioritising investment to the most at risk communities</li> <li>d) Preventing more people becoming exposed to risk</li> <li>e) Providing an effective and sustained response to events.</li> </ol>                                                                    | <p>The Drought Plan should consider the aims and objectives of the strategy. The SEA should include objectives and guide questions relating to flooding and coastal erosion.</p>                             |
| Welsh Government (2021) <i>Climate Change (Wales) Regulations</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                              |
| <p>This is the second set of climate change regulations made under Part 2 of the Environment (Wales) Act 2016. The 2021 Regulations form part of the wider statutory framework for the reduction of emissions in Wales, set out in Part 2 of the Act. These regulations represent Wales' commitment to tackling climate change through a structured, long-term approach to emissions reduction, aligning with broader UK and global climate objectives.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>The Drought Plan should align with the long term goals and objectives set out the regulations.</p>                                                                                                        |
| Welsh Government (2020) <i>The Nature Recovery Action Plan for Wales 2020 – 21</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                              |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                     |
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| <p>The Nature Recovery Action Plan (NRAP) for Wales refreshes the original plan published in 2015. The Plan sets out five themes for action:</p> <p>Spatial action:</p> <ul style="list-style-type: none"> <li>• Maintaining and enhancing resilient ecological networks</li> </ul> <p>Transformative:</p> <ul style="list-style-type: none"> <li>• Increasing Knowledge and Knowledge Transfer;</li> <li>• Realising new Investment and funding;</li> <li>• Upskilling and capacity for delivery;</li> <li>• Mainstreaming, Governance and Reporting our Progress</li> </ul> <p>Five immediate priorities are identified for further action:</p> <ul style="list-style-type: none"> <li>• Aligning the responses to the climate emergency with the biodiversity crisis</li> <li>• Addressing the post EU exit funding gap for agri-environment measures</li> <li>• Providing spatial direction for targeting action for biodiversity</li> <li>• Improving the condition of the Protected Sites Network</li> <li>• Exploring new and sustainable funding mechanisms for biodiversity action.</li> </ul> | <p>The SEA should have objectives/guide questions relating to maintaining and enhancing resilient ecological networks and protecting sites designated for their biodiversity value. The Drought Plan should support the aims of NRAP and ensure that they help towards maintaining and enhancing resilient ecological networks.</p> |
| Welsh Government (2020) <i>Strategic Equality Plan 2020-2024</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                     |
| <p>The Plan seeks to tackle inequality within Wales through improving the accessibility of services, seeking fairer outcomes for citizens and being pro-active in tackling all kinds of inequality.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>The SEA should have objectives/guide questions relating to cohesion, accessibility, economic wellbeing and human health and well-being.</p>                                                                                                                                                                                      |
| Welsh Government (2020) <i>Welcome to Wales: Priorities for the visitor economy 2020 – 2025</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                     |
| <p>The strategy identifies the priorities to deliver a prosperous and competitive tourism industry in Wales. Sets out the Welsh Government/Visit Wales' ambition to grow tourism for the good of Wales: generating economic, environmental, cultural and health benefits that enrich the lives of visitors and local communities.</p> <p>The main goals of the plan are:</p> <ul style="list-style-type: none"> <li>• Economic growth that delivers benefits to people and places</li> <li>• Environmental sustainability</li> <li>• Social and cultural enrichment</li> <li>• Health benefits.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <p>The Drought Plan could take account of the benefits that tourism can bring to Wales. The SEA should include assessment criteria relating the importance of tourism and/or recreation.</p>                                                                                                                                        |
| Welsh Government, Department for Environment, Food & Rural Affairs, Natural England, and Natural Resources Wales (2021) <i>Habitats regulations assessments: protecting a European site Guidance</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                     |
| <p>The Habitats Regulations seeks to conserve natural habitats by ensuring that any plans or projects likely to affect these areas undergo rigorous scrutiny to protect their ecological integrity.</p> <p>HRAs assess potential impacts on designated Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), focusing on maintaining favorable conditions for habitats and species. The assessment process involves evaluating the significance of impacts, exploring mitigation measures, and determining whether a project can proceed without compromising the site's conservation objectives.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>The Drought Plan should take into account the habitats and species that have been identified under these regulations, and include provision for the preservation, protection and improvement of the quality of the environment as appropriate.</p>                                                                               |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | The SEA assessment framework should incorporate sites protected for their nature conservation importance.                                                                      |
| <b>Welsh Government (2021) <i>Future Wales: The National Plan 2040</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                |
| Future Wales – the National Plan 2040 is the Welsh national development framework, setting the direction for development in Wales to 2040. It is a development plan with a strategy for addressing key national priorities through the planning system, including sustaining and developing the economy, achieving decarbonisation and climate-resilience, developing strong ecosystems and improving the health and well-being of Welsh communities. The document contains development policies that all new developments within Wales are required to adhere to. | The SEA should have objectives relating to economic and social well-being, protection of the historic and natural environment, carbon emissions and climate change/resilience. |
| <b>Welsh Government - Public Health Wales (2023) <i>Climate Change in Wales: Health Impact Assessment</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                |
| The strategic and comprehensive assessment of the possible effects of climate change on population health in Wales is presented in this report. It encourages the implementation of programs and policies that can safeguard and advance everyone's health and well-being in Wales, as well as in the demographic segments and geographic regions most vulnerable to adverse effects.                                                                                                                                                                              | The SEA should have objectives/guide questions relating to climate change and the well-being of the population's health.                                                       |
| <b>Welsh Government (2021) <i>Our Economic Resilience &amp; Reconstruction Mission</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                |
| <p>Sets out how the Welsh Government plans to recover from the economic damage of the coronavirus (COVID-19) pandemic. The Mission document seeks three outcomes, centred around the vision of a 'well-being economy':</p> <ul style="list-style-type: none"> <li>• Prosperous economy</li> <li>• Green economy</li> <li>• Equal economy</li> </ul>                                                                                                                                                                                                                | The Drought Plan should seek to support the outcomes of the plan. The SEA should include an objective relating to economic and social well-being.                              |
| <b>Natural Resources Wales - Area Statements and Opportunity Catchments</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                |
| Natural Resources Wales has prepared Area Statements for seven separate diverse parts of the country including the South East, South Central, South West, Mid, North East and North West Wales. These statements set out the challenges in these parts and how they can be managed for future generations.                                                                                                                                                                                                                                                         | The Drought Plan should seek to support the outcomes of these regional statements.                                                                                             |
| <b>Welsh Government (2023) <i>Agriculture (Wales) Act 2023</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                |
| This Act establishes a framework for agricultural policy in Wales. The overarching aim of the Act is to support sustainable farming practices, environmental protection, and rural community development in Wales.                                                                                                                                                                                                                                                                                                                                                 | The Drought Plan and SEA should seek to support the sustainable management of agricultural soils in Wales.                                                                     |
| <b>Welsh Government (2022) <i>Soil Management</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                |
| This guidance sets out Wales' vision for the sustainable use and management of agricultural soils for future generations.                                                                                                                                                                                                                                                                                                                                                                                                                                          | The Drought Plan and SEA should seek to ensure the sustainable management of agricultural soils Wales.                                                                         |
| <b>Welsh Government (2022) <i>Sustainable Farming Scheme</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                |
| This is a key part of the Welsh Government's vision for transforming agriculture in the country. It is designed to reward farmers for adopting environmentally sustainable practices that deliver a range of public goods, such as enhancing biodiversity, improving water and soil quality, and mitigating climate change. The scheme is closely linked to the Agriculture (Wales) Act 2023 and is fundamental to achieving the goals of Sustainable Land Management (SLM)                                                                                        | The Drought Plan and SEA should seek to ensure the sustainable management of agricultural soils Wales.                                                                         |

| National Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                      |
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| <b>Welsh Government (2022) <i>Net Zero Wales</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                      |
| <p>This emissions reduction plan sets the foundations for the journey to make Wales net zero and greener, stronger and fairer by 2050.. The areas where there is intent for action include:</p> <ul style="list-style-type: none"> <li>• Commitment to Net Zero or Action on Climate Emergency</li> <li>• Understanding and Reducing Carbon Footprint</li> <li>• Education, Engagement &amp; Capacity Building</li> <li>• Energy &amp; Reducing Energy Demand</li> <li>• Homes and Housing</li> <li>• Circular Economy</li> <li>• Waste</li> <li>• Enriching our Natural Resources</li> </ul>                            | <p>The Drought Plan should seek to contribute to the reduction of the total amount of carbon produced as much as feasible and help towards attainment of net zero greenhouse gas emissions by 2050.</p> <p>The SEA should have an objective pertaining to sustainable development that emphasises the need to minimise greenhouse gas emissions.</p> |
| Sub-regional/Local Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                      |
| Purpose of the Document, including Objectives and Targets relevant to the Drought Plan and SEA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Relationships and Influences on the Drought Plan and the SEA                                                                                                                                                                                                                                                                                         |
| <b>Area of Outstanding Natural Beauty Management Units (various) <i>AONB Management Plans</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                      |
| <p>The management plans for AONBs contain actions to ensure the protection and enhancement of the landscape. The following AONB Management Plans are published for the DCWW area:</p> <ul style="list-style-type: none"> <li>• Anglesey AONB Management Plan 2023-2028</li> <li>• Clwydian Range and Dee Valley AONB Management Plan 2020-2025</li> <li>• Gower AONB Management Plan 2017</li> <li>• Llyn AONB Management Plan 2015-2020</li> <li>• Wye Valley AONB Management Plan 2021-26</li> </ul>                                                                                                                   | <p>Drought Plan Measures within AONBs should be consistent with the management plan.</p> <p>The SEA assessment framework should consider the effects of options on landscapes, including designated landscapes.</p>                                                                                                                                  |
| <b>World Heritage Site Management Plans (various)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                      |
| <p>There are four World Heritage Sites in Wales and each have a Management Plan to provide the framework by which the Outstanding Universal Value of a World Heritage Site will be maintained, sustained and communicated. The following Management Plans are available for Wales:</p> <ul style="list-style-type: none"> <li>• Castles and Town Walls of King Edward in Gwynedd World Heritage Site Management Plan 2018-28</li> <li>• Blaenavon Industrial Landscape World Heritage Site Management Plan 2018-2023</li> <li>• Pontcysyllte Aqueduct and Canal World Heritage Site Management Plan 2019-2029</li> </ul> | <p>Drought Plan Measures within World Heritage Sites should be consistent with the management plan.</p> <p>The SEA assessment framework should consider the effects of options on heritage assets, including World Heritage Sites.</p>                                                                                                               |



| Sub-regional/Local Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                       |
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| <ul style="list-style-type: none"> <li>The Slate Landscape of Northwest Wales World Heritage Site: Supplementary Guidance</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                       |
| <b>Defra (Various) Eel Management Plans</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                       |
| <p>Eel management plans describe the current status of Eel populations across river basin districts and assesses compliance with targets set out in EU Council Regs 110/2207.</p> <p>Relevant Eel Management Plans are set out below:</p> <ul style="list-style-type: none"> <li>Eel Management Plan for Western Wales River Basin District</li> <li>Eel Management Plan for Severn River Basin District;</li> <li>Eel Management Plan for Dee River Basin District.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | The Drought Plan should take Eel management plans into account.                                                                                                                                       |
| <b>Environment Agency (various) Catchment Flood Management Plans</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                       |
| <p>Catchment Flood Management Plans (CFMPs) give an overview of the flood risk across each river catchment. They recommend ways of managing those risks now and over the next 50-100 years. CFMPs consider all types of inland flooding, from rivers, ground water, surface water and tidal flooding, but not flooding directly from the sea, (coastal flooding), which is covered in Shoreline Management Plans. They also take into account the likely impacts of climate change, the effects of how we use and manage the land, and how areas could be developed to meet our present day needs without compromising the ability of future generations to meet their own needs.</p> <p>Those CFMPs present in the DCWW area are:</p> <ul style="list-style-type: none"> <li>Wye and Usk;</li> <li>Eastern Valleys;</li> <li>Taff and Ely;</li> <li>Ogmore to Tawe (including Thaw and Cadoxton);</li> <li>Loughor to Taf;</li> <li>Pembrokeshire and Ceredigion Rivers;</li> <li>North West Wales;</li> <li>Conwy and Clwyd;</li> <li>River Dee.</li> </ul> | <p>The Drought Plan should take CFMPs into account.</p> <p>The SEA should include a guide question relating to flood risk.</p>                                                                        |
| <b>Environment Agency (various) River Basin Management Plans</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                       |
| <p>River Basin Management Plans (RBMPs) set out how the water environment will be managed and provide a framework for more detailed decisions to be made. RBMPs set out a more integrated approach to river basin management based on the following principles:</p> <ul style="list-style-type: none"> <li>Integrate and streamline plans and processes;</li> <li>Set out a clear, transparent and accessible process of analysis and decision-making;</li> <li>Focus at the river basin district level;</li> <li>Work in partnership with other regulators;</li> <li>Encourage active involvement of a broad cross-section of stakeholders;</li> <li>Make use of the alternative objectives to deliver sustainable development;</li> <li>Use Better Regulation principles and consider the cost-effectiveness of the full range of possible measures;</li> </ul>                                                                                                                                                                                             | <p>The Drought Plan should reflect the broad objectives of these plans.</p> <p>The SEA objectives should reflect the need to manage water resources on a catchment basis in a sustainable manner.</p> |

| Sub-regional/Local Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                   |
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| <ul style="list-style-type: none"> <li>- Seek to be even handed across different sectors of society and sectors of industry;</li> <li>- Seek to be even handed and transparent in the management of uncertainty;</li> <li>- Develop methodologies and refine analyses as more information becomes available.</li> </ul> <p>RBMPs in the DCWW area are Severn, Western Wales and Dee.</p>                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                   |
| Environment Agency, Natural Resources Wales and Natural Scotland (2016) <i>River Basin District Flood Risk Management Plans</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                   |
| <p>Flood risk management plans (FRMP) explain the risk of flooding from rivers, the sea, surface water, groundwater and reservoirs, and set out how risk management authorities will work with communities to manage flood risk over the next six years.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>The Drought Plan should take FRMPs into account.</p> <p>The SEA should include a guide question relating to flood risk.</p>                                                                                    |
| Environment Agency (undated) <i>Wye Waterway Plan 2011-2016</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                   |
| <p>The plan's vision is to develop and promote appropriate navigation and recreational activities for all waterway users on the River Wye, while protecting, maintaining and enhancing the unique conservation status of the waterway. The plan's core objectives are to:</p> <ul style="list-style-type: none"> <li>- improve and promote access and information to all users;</li> <li>- improve and maintain the river infrastructure, facilities and services for all users;</li> <li>- Contribute to enhanced biodiversity, heritage and landscape value in the waterway corridor;</li> <li>- Increase recreational use of the waterway.</li> </ul> <p>No specific targets are set.</p> | <p>Drought Plan measures in the Wye catchment should be consistent with the aims of the Wye Waterway Plan.</p> <p>The SEA assessment should consider the effects of options on recreational use of waterways.</p> |
| Environment Agency (various) <i>Salmon Action Plans</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                   |
| <p>Salmon action plans have been produced for the following river catchments in Wales;</p> <ul style="list-style-type: none"> <li>- Cleddau;</li> <li>- Clwyd;</li> <li>- Conwy;</li> <li>- Dee;</li> <li>- Dwyfor;</li> <li>- River Dyfi;</li> <li>- Dysynni;</li> <li>- Glaslyn and Dwyryd;</li> <li>- Mawddach;</li> <li>- Nevern;</li> <li>- Ogmere;</li> <li>- Ogwen;</li> <li>- Rheidol;</li> <li>- Taf;</li> <li>- Taff and Ely;</li> <li>- Tawe;</li> <li>- Teifi;</li> <li>- River Usk;</li> </ul>                                                                                                                                                                                  | <p>The Drought Plan should consider the effect of options on salmon populations.</p> <p>The SEA assessment framework should include a guide question relating to the effects of options on fish.</p>              |

| Sub-regional/Local Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                      |
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| <ul style="list-style-type: none"> <li>- River Wye.</li> </ul> <p>The aim of the action plans is to ensure the objectives set out in the National Salmon Strategy are met. They set out what needs to be done to support and restore salmon populations.</p> <p>Individual targets are set out in each action plan</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                      |
| Local Biodiversity Action Plans (LBAPs), including Species and Habitats Action Plans (various)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                      |
| <p>27 LBAPs in Wales and one for Herefordshire.</p> <p>Each Local Biodiversity Action Plan works on the basis of partnership to identify local priorities and to determine the contribution they can make to the delivery of the national Species and Habitat Action Plan targets. They include targets for increasing and enhancing biodiversity.</p> <p>Species Action Plans set objectives with regard specific species and set out proposed actions and targets along with which agency will be responsible for carrying them out.</p> <p>Habitat Action Plans sets objectives with regard specific UK habitats and sets out proposed actions targets along with which agency will be responsible for carrying them out.</p>                                               | <p>Drought Plan measures should take into account LBAP objectives.</p> <p>The SEA assessment should consider effects of options on biodiversity and outline enhancement and mitigation opportunities where these are identified.</p> |
| Local Geodiversity Action Plans (LGAPs) (Various)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                      |
| <p>Local Geodiversity Action Plans (LGAPs) set out actions to conserve and enhance the geodiversity of a particular area. In general they aim to:</p> <ul style="list-style-type: none"> <li>• identify, conserve and enhance the best sites that represent the geological history of an area in a scientific, educational, recreational and cultural setting,</li> <li>• promote geological sites and make geo-conservation relevant to people,</li> <li>• provide a local geodiversity audit (an audit of sites and skills) and influence local planning policy.</li> </ul> <p>The following areas are within the DCWW area and have Local Geodiversity Action Plans:</p> <ul style="list-style-type: none"> <li>• Anglesey</li> <li>• <u>Clwydian Range AONB</u></li> </ul> | <p>The Drought Plan should seek to protect and enhance geodiversity.</p> <p>SEA objectives should reflect the need to conserve and, where possible, enhance geodiversity.</p>                                                        |
| Local Planning Authority (various) Land Use Plans                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                      |
| <p>The DCWW area covers a large number of Local Planning Authorities. These have been identified as:</p> <ul style="list-style-type: none"> <li>- Conwy;</li> <li>- Blaenau Gwent;</li> <li>- Brecon Beacons National Park;</li> <li>- Bridgend</li> <li>- Caerphilly;</li> <li>- Cardiff;</li> <li>- Carmarthenshire;</li> <li>- Ceredigion;</li> <li>- Denbighshire;</li> <li>- Flintshire;</li> <li>- Gwynedd;</li> </ul>                                                                                                                                                                                                                                                                                                                                                   | <p>Drought Plan measures should be consistent with the Land Use Plans of those local authorities that will be affected by the option.</p>                                                                                            |

| Sub-regional/Local Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                    |
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| <ul style="list-style-type: none"> <li>- Herefordshire;</li> <li>- Merthyr Tydfil;</li> <li>- Monmouthshire;</li> <li>- Neath Port Talbot;</li> <li>- Newport;</li> <li>- Pembrokeshire;</li> <li>- Pembrokeshire Coast National Park;</li> <li>- Powys;</li> <li>- Rhondda Cynon Taff;</li> <li>- Snowdonia National Park;</li> <li>- Swansea;</li> <li>- Torfaen;</li> <li>- Vale of Glamorgan;</li> <li>- Wrexham;</li> <li>- Ynys Mon.</li> </ul> <p>The main objectives of the existing and emerging Land Use Plans in these areas are related to the sustainable development of the area.</p> |                                                                                                                                                                                                                                                                    |
| National Landscape Character Areas (various)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                    |
| NLCAs are defined at a broad landscape scale throughout Wales. The descriptive profiles for the 48 individual character areas highlight what distinguishes one landscape from another, with reference to their regionally distinct natural, cultural and perceptual characteristics. Maps are available from NRW.                                                                                                                                                                                                                                                                                   | The Drought Plan may have an effect on NLCAs. The SEA should include objectives that take into account the objectives of the NLCAs where relevant (e.g. manage and enhance existing habitats).                                                                     |
| National Park Management Plans (various)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                    |
| <p>The management plans for National Parks contain actions to ensure the protection and enhancement of the landscape and natural environment of these areas. The following Management Plans are published for National Parks present in the DCWW area:</p> <ul style="list-style-type: none"> <li>• The <b>Eyri</b> National Park Partnership Plan 2020</li> <li>• Y Bannau: The Future. The Management Plan for <b>Bannau Brycheiniog</b> National Park 2023-2028</li> <li>• <b>Pembrokeshire Coast</b> National Park Management Plan 2020-2024</li> </ul>                                         | <p>Drought Plan measures within the National Parks should be consistent with the respective management plan.</p> <p>The SEA assessment framework should consider the effects of options on landscapes and the natural environment, including designated areas.</p> |
| Natural Resources Wales (Various) Catchment Abstraction Management (Licencing) Strategies (CAMS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                    |

| Sub-regional/Local Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                           |
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| <p>Catchment Abstraction Management Strategies (CAMS) to assess how much water is available for abstraction, and where. Therefore, highlighting where water abstraction licences can be granted.</p> <p>A water abstraction licence is required to remove more than 20 cubic metres (4,400 gallons) of water per day from a river or stream, reservoir, lake or pond, canal or spring. The strategies aim to meet the water needs of the environment and to allow water users to sustainably exploit any surplus.</p> <p>The strategies were updated in 2014 to use an improved method and which meets the requirements of the EU Water Framework Directive 2000/60/EC by applying a better understanding of how much water the environment needs. Within the DCWW area the following Catchment Abstraction Management Strategies (CAMS) are in place:</p> <ul style="list-style-type: none"> <li>• River Wye CAMS</li> <li>• Thaw and Cadoxton CAMS</li> <li>• The Teifi and North Ceredigion CAMS</li> <li>• The Cleddau and Pembrokeshire Coastal Rivers CAMS</li> <li>• The Carmarthen Bay CAMS</li> <li>• The Swansea Bay CAMS</li> <li>• Anglesey Catchment CAMS</li> <li>• Clwyd Catchment CAMS</li> <li>• Conwy Catchment CAMS</li> <li>• River Dee CAMS</li> <li>• Llŷn and Eryri CAMS</li> <li>• Meirionnydd CAMS</li> <li>• River Usk CAMS</li> <li>• South East Valleys CAMS</li> </ul> | <p>The Drought Plan should take the CAMS into account.</p> <p>The SEA assessment should consider the effects of options on the availability and sustainability of water supply.</p>                                                       |
| Public Services Boards (PSBs) (Various) PSB Assessments and Local Well-being Plans                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                           |
| <p>The purpose of Public Services Boards (PSBs) is to improve the economic, social, environmental and cultural well-being in its area by strengthening joint working across all public services in Wales.</p> <p>The Well-being of Future Generations (Wales) Act 2015 establishes statutory PSBs which will replace the voluntary Local Service Boards in each local authority area. Each board will:</p> <ul style="list-style-type: none"> <li>• assess the state of economic, social, environmental and cultural well-being in its area</li> <li>• set objectives that are designed to maximise the PSBs contribution to the well-being goals.</li> </ul> <p>Each PSB must prepare and publish a plan setting out its objectives and the steps it will take to meet them. This is called a Local Well-being Plan. It must say:</p> <ul style="list-style-type: none"> <li>• why the PSB feels their objectives will contribute within their local area to achieving the well being goals</li> <li>• how it has had regard to the assessment of Local Well-being in setting its objectives and steps to take.</li> <li>• Each PSB will carry out an annual review of their plan showing their progress. When producing their assessments of local well-being and Local Well-being plan, PSBs must consult widely. There are 19 PSB areas within the DCWW area:</li> </ul>                        | <p>The draft Drought Plan should consider how it can contribute to the seven well-being goals set out in the Well-being of future generations (Wales) Act (2015).</p> <p>The SEA Framework should reflect the seven well-being goals.</p> |

| Sub-regional/Local Plans and Programmes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Shore Line Management Plans (various)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                           |
| <p>Shore Line Management Plans are prepared in England and Wales. They are developed by Coastal Groups with members drawn from local authorities and other stakeholders. They identify the most sustainable approach to managing the flood and coastal risks to the coastline in the short term (up to 20 years), medium term (20 to 50 years) and long term (50 to 100 years).</p> <p>Relevant plans include:</p> <ul style="list-style-type: none"><li>• North West England and North Wales Shoreline Management Plan</li><li>• Severn Estuary Shoreline Management Plan Review</li><li>• Lavernock Point to St Ann's Head Shoreline Management Plan</li><li>• West of Wales Shoreline Management Plan</li></ul> | <p>Drought Plan measures should take into account the policies and actions of the SMP.</p> <p>Where appropriate, the SEA should consider the cumulative effect of SMP policies and actions and Drought Plan measures.</p> |

## APPENDIX D - CRITERIA FOR ASSESSING SIGNIFICANCE

| Objective                                                                                                                                                                                                                                                                                             | Key Questions                                                                                                                                                                                                                                                                                                                                                               | Effect | Description       | Illustrative Guidance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.1 To protect and enhance designated sites and their qualifying features, biodiversity, priority habitats and species ecological functions, capacity and habitat connectivity and to protect and enhance natural capital and the biodiversity and ecosystem services that contribute to the economy. | <i>Will it avoid damage to aquatic, transitional and terrestrial species and habitats including fish populations (particularly migratory fish)?</i>                                                                                                                                                                                                                         | +++    | Major Positive    | N/A. No draft Drought Plan measure is anticipated to have significant positive effects against this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                             | ++     | Moderate Positive | N/A. No draft Drought Plan measure is anticipated to have moderate positive effects against this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                             | +      | Minor Positive    | N/A. No draft Drought Plan measure is anticipated to have minor positive effects against this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                                                                                                                                                                                                                                                                                       | <i>Will it enhance aquatic, transitional and terrestrial species and habitats?</i>                                                                                                                                                                                                                                                                                          | 0      | Neutral           | Draft Drought Plan measure would not have any effects on European or national designated sites and/or any species (including both designated and non-designated species).                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                                                                                                                                       | <i>Will it avoid wider impacts to groundwater dependent terrestrial ecosystems (wetlands, peatlands, fens, etc) e.g., due to potential reduced baseflow to groundwater aquifers?</i>                                                                                                                                                                                        | -      | Minor Negative    | Draft Drought Plan measure would have minor residual effect on local or national designated sites and/or protected sites (e.g. short term decrease in population of designated species). These impacts could not be effectively avoided but could be effectively compensated for.<br>Draft Drought Plan measure would have minor short-term negative effects on non-designated conservation sites and species (e.g. – through decreases in flows/water quality, or some loss of habitat leading to temporary loss of ecosystem structure, function and/or connectivity).                                                      |
|                                                                                                                                                                                                                                                                                                       | <i>Will it protect the most important sites for nature conservation?</i>                                                                                                                                                                                                                                                                                                    | --     | Moderate Negative | Draft Drought Plan measure would have moderate residual effect on national designated sites and/or protected sites (e.g. short term decrease in population of designated species). These impacts could not be effectively avoided but could be partially compensated for.<br>Draft Drought Plan measure would have moderate medium-term negative effects on non-designated conservation sites and species (e.g. – through decreases in flows/water quality, or some loss of habitat leading to temporary loss of ecosystem structure, function and/or connectivity).                                                          |
|                                                                                                                                                                                                                                                                                                       | <i>Will it minimise habitat fragmentation and protect connectivity?</i>                                                                                                                                                                                                                                                                                                     | --     | Major Negative    | Draft Drought Plan measure would have a major negative and sustained effect on European or national designated sites and/or protected species (e.g. – prevents reaching all conservation objectives on site, long term decrease in populations of designated species). These impacts could not reasonably be compensated for.<br>Draft Drought Plan measure would have major negative effects on local biodiversity (e.g. – through decreases in flows/water quality, or considerable loss of habitat leading to long term loss of ecosystem structure, function and/or connectivity, or the transfer of non-native species). |
|                                                                                                                                                                                                                                                                                                       | <i>Will it provide opportunities for new habitat creation or restoration and link existing habitats?</i><br><i>Will it ensure the sustainable management of natural habitats, taking into account climate change adaptability?</i><br><i>Will it affect WFD compliance e.g. good ecological potential/status?</i><br><i>Will it protect natural capital and ecosystems?</i> | ?      | Uncertain         | From the level of information available the impact that the option would have on this objective is uncertain                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |



| Objective                                                                                                                           | Key Questions                                                                                                                                                                                                                                                                                                      | Effect | Description       | Illustrative Guidance                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                     | <p><i>Will it improve access to nature for people?</i></p> <p><i>Will it protect priority species and habitats?</i></p> <p><i>Will it maintain and enhance ecosystem resilience in line with the requirements of the Environment (Wales) Act' and consider the Priority and Resilient Ecological Networks?</i></p> |        |                   |                                                                                                                                                                                                                                                                                                                                 |
| 1.2 To avoid and, where required, manage the introduction or spread of invasive and non-native species (INNS).                      | <i>Will it limit, reduce or increase the risk of spread of Invasive Non-native Species (INNS)?</i>                                                                                                                                                                                                                 | +++    | Major Positive    | The option would result in a major reduction or management of INNS.                                                                                                                                                                                                                                                             |
|                                                                                                                                     |                                                                                                                                                                                                                                                                                                                    | ++     | Moderate Positive | The option would result in a moderate reduction or management of INNS.                                                                                                                                                                                                                                                          |
|                                                                                                                                     |                                                                                                                                                                                                                                                                                                                    | +      | Minor Positive    | The option would result in a minor reduction or management of INNS.                                                                                                                                                                                                                                                             |
|                                                                                                                                     |                                                                                                                                                                                                                                                                                                                    | 0      | Neutral           | The option would not result in any effects on INNS                                                                                                                                                                                                                                                                              |
|                                                                                                                                     |                                                                                                                                                                                                                                                                                                                    | -      | Minor Negative    | The option would result in a minor increase or spread of INNS.                                                                                                                                                                                                                                                                  |
|                                                                                                                                     |                                                                                                                                                                                                                                                                                                                    | --     | Moderate Negative | The option would result in a moderate increase or spread of INNS.                                                                                                                                                                                                                                                               |
|                                                                                                                                     |                                                                                                                                                                                                                                                                                                                    | --     | Major Negative    | The option would result in a major increase or spread of INNS.                                                                                                                                                                                                                                                                  |
|                                                                                                                                     |                                                                                                                                                                                                                                                                                                                    | ?      | Uncertain         | From the level of information available the effect that the option would have on this objective is uncertain.                                                                                                                                                                                                                   |
| 2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing). | <i>Will the draft Drought Plan measure ensure continuity of clean drinking water supply within statutory standards supply at times of drought?</i>                                                                                                                                                                 | +++    | Major Positive    | <p>Drought Plan measure leads to major yield (&gt;5 Ml/d) of drinking water at times of drought and will ensure that surface water quality is maintained within statutory standards.</p> <p>Drought Plan measure has a strong and sustained positive effect on the health of local communities and sensitive social groups</p>  |
|                                                                                                                                     | <i>Will it help to promote healthy communities and protect from risks to health and wellbeing, including any vulnerable groups?</i>                                                                                                                                                                                | ++     | Moderate Positive | <p>Drought Plan measure leads to moderate yield (2-5 Ml/d) of drinking water at times of drought and will ensure that surface water quality is maintained within statutory standards.</p> <p>Drought Plan measure has a strong and sustained positive effect on the health of local communities and sensitive social groups</p> |
|                                                                                                                                     | <i>Will the draft Drought Plan measure affect the</i>                                                                                                                                                                                                                                                              | +      | Minor Positive    | <p>Draft Drought Plan measure leads to minor yield (&lt;2 Ml/d) of drinking water at times of drought and will ensure that surface water quality is maintained within statutory standards.</p> <p>Draft Drought Plan measure has a temporary positive effect on the health of local communities and sensitive social groups</p> |
|                                                                                                                                     |                                                                                                                                                                                                                                                                                                                    | 0      | Neutral           | N/A. Drought Plan measure is anticipated to have a neutral impact against this objective.                                                                                                                                                                                                                                       |

| Objective                                                                        | Key Questions                                                                                                                                                                                                                  | Effect | Description       | Illustrative Guidance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                  | <i>affordability of clean drinking water?</i>                                                                                                                                                                                  | -      | Minor Negative    | Drought Plan measure results in deterioration in surface water quality, has a temporary effect on health (e.g. noise and dust).                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                                                                  | <i>Will the draft Drought Plan measure negatively affect human health by resulting in increased nuisance and disruption (e.g. as a result of increased noise levels)?</i>                                                      | --     | Moderate Negative | Drought Plan measure results in deterioration in surface water quality, has a medium-term negative effect on health (e.g. noise and dust).                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                                                  | <i>Will it protect or enhance opportunities for recreation?</i>                                                                                                                                                                | --     | Major Negative    | Drought Plan measure results in deterioration in surface water quality, long term negative effect on health (e.g. noise and dust).                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                                                                  | <i>Will the option affect public access to, or enjoyment of, local green/blue space?</i><br><i>Will the option impact on physical health and mental well-being by affecting opportunities for informal outdoor recreation?</i> | ?      | Uncertain         | From the level of information available the impact that the option would have on this objective is uncertain                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 2.2 To protect and enhance the economic and social needs of the local community. | <i>Will it assist in ensuring provision of essential infrastructure services to support a sustainable economy?</i>                                                                                                             | +++    | Major Positive    | Drought Plan measure leads to major yield (>5 Ml/d) of drinking water at times of drought and draft Drought Plan measure is located in water resource zone where seasonal (summer) tourist influx drives sustained high levels of demand (all water resource zones with a coast except SEWCUS, where no seasonal peak in demand is observed).<br>Drought Plan measures would generate major employment opportunities and lead to substantial investment in local supply chains fostering economic growth.<br>Drought Plan measure will have no impact on opportunities for recreation at times of drought.  |
|                                                                                  | <i>Will it protect or enhance opportunities for recreation and tourist activities, including navigation?</i>                                                                                                                   | ++     | Moderate Positive | Drought Plan measure leads to moderate yield (2-5 Ml/d) of drinking water at times of drought and Drought Plan measure is located in water resource zone where seasonal (summer) tourist influx drives sustained high levels of demand (all water resource zones with a coast except SEWCUS, where no seasonal peak in demand is observed).<br>Drought Plan measures would generate moderate employment opportunities and lead to substantial investment in local supply chains fostering economic growth.<br>Drought Plan measure will have no impact on opportunities for recreation at times of drought. |
|                                                                                  | <i>Will it protect PRoW and associated infrastructure?</i>                                                                                                                                                                     | +      | Minor Positive    | Drought Plan measure leads to minor yield (<2Ml/d) of drinking water at times of drought but is located in water resource zone where there is no seasonal (summer) tourist influx.<br>Drought Plan measure would generate limited and temporary employment opportunities and small-scale investment.<br>Drought Plan measure will have no impact on opportunities for recreation at times of drought.                                                                                                                                                                                                       |
|                                                                                  |                                                                                                                                                                                                                                | 0      | Neutral           | Draft Drought Plan measure leads to negligible yield of drinking water at times of drought.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

| Objective                                                                                            | Key Questions                                                                                                                                                                                                                                                                                                                                                                                                                 | Effect | Description       | Illustrative Guidance                                                                                                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                               | -      | Minor Negative    | Draft Drought Plan measure is anticipated to have a minor impact on recreation (e.g. deterioration in Water Framework Directive chemical quality classification may result from option and/or option may impact on informal recreational activities such as walking or bird watching).       |
|                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                               | --     | Moderate Negative | Draft Drought Plan measure is anticipated to have a moderate impact on recreation (e.g. deterioration in Water Framework Directive chemical quality classification may result from option and/or option may impact on informal/formal recreational activities).                              |
|                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                               | --     | Major Negative    | Draft Drought Plan measure is anticipated to have a major impact on recreation (e.g. deterioration in Water Framework Directive chemical quality classification may result from option and option may impact on formal recreational activities such as canoeing and pleasure craft, angling) |
|                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                               | ?      | Uncertain         | From the level of information available the effect that the option would have on this objective is uncertain                                                                                                                                                                                 |
| 3.1 To minimise resource use and waste production..                                                  | <i>Will it minimise greenhouse gas emissions through energy efficiency?</i><br><i>Will it minimise waste and/or encourage the reuse and recycling of waste?</i><br><i>Will it encourage sustainable design or use of sustainable materials?</i><br><i>Will it enable efficient water resource management and ensure maintenance of supply?</i><br><i>Will it help to minimise the demand for resources (including water)?</i> | +++    | Major Positive    | N/A. No draft Drought Plan measure is anticipated to have a major positive effect against this objective.                                                                                                                                                                                    |
|                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                               | ++     | Moderate Positive | N/A. No draft Drought Plan measure is anticipated to have a moderate positive effect against this objective.                                                                                                                                                                                 |
|                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                               | +      | Minor Positive    | Drought Plan measure will use existing infrastructure to realise yield (e.g. relaxation of abstraction licence conditions).                                                                                                                                                                  |
|                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                               | 0      | Neutral           | Drought Plan measure will largely use existing infrastructure, and only requires minor additional materials to realise yield (e.g. leakage repairs, lowering of pumps at existing abstraction site).                                                                                         |
|                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                               | -      | Minor Negative    | Drought Plan measure requires additional infrastructure. Amount of additional materials is expected to be minor (e.g. temporary treatment, pumping and <2km of pipeline).                                                                                                                    |
|                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                               | --     | Moderate Negative | Drought Plan measure requires additional infrastructure. Amount of additional materials is expected to be moderate (e.g. temporary treatment, pumping and 2-5km of pipeline).                                                                                                                |
|                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                               | --     | Major Negative    | Drought Plan measure requires significant amounts of additional infrastructure (e.g. temporary treatment, pumping and > 5km of pipeline). Due to length of pipeline, energy consumption is expected to be significant.                                                                       |
| 4.1 To protect and enhance the quality of surface, groundwater, estuarine and coastal water and help | <i>Will it minimise risks of negative effects on water quality?</i><br><i>Will it affect WFD compliance, including avoiding deterioration in any status element?</i>                                                                                                                                                                                                                                                          | +++    | Major Positive    | The option would result in addressing failure of WFD Good Ecological Status / Good Ecological Potential.                                                                                                                                                                                     |
|                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                               | ++     | Moderate Positive | The option would contribute to addressing failure of WFD Good Ecological Status / Good Ecological Potential.                                                                                                                                                                                 |
|                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                               | +      | Minor Positive    | The option would contribute to a minor improvement in surface/coastal water quality or in groundwater quality                                                                                                                                                                                |

| Objective                                                                                                                            | Key Questions                                                                                                                          | Effect | Description       | Illustrative Guidance                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|--------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| achieve the objectives of the Water Framework Directive Regulations.                                                                 | <i>Will it prevent a water body or protected area from achieving the objective set out in the relevant RBMP?</i>                       | 0      | Neutral           | The option would have no discernible effect on river flows or surface/coastal water quality or on groundwater quality. The option would not lead to a change in WFD classification                                                                                                                                                                                                                                               |
|                                                                                                                                      | <i>Will it affect bathing water compliance?</i>                                                                                        | -      | Minor Negative    | The option would have a minor effect on river and/or coastal water quality and lead to short term or intermittent effects on receptors (e.g., designated habitats, protected species or recreational users of rivers and the coastline) that could not be avoided but could be mitigated. The option would result in minor decreases in groundwater quality.                                                                     |
|                                                                                                                                      | <i>Will it avoid contamination of groundwater?</i>                                                                                     | --     | Moderate Negative | The option would have a moderate effect on river and/or coastal water quality and lead to long term or continuous effects on receptors (e.g., designated habitats, protected species or recreational users of rivers and the coastline) that could not reasonably be mitigated. The option would result in the likely deterioration of WFD classification. The option would result in moderate decreases in groundwater quality. |
|                                                                                                                                      | <i>Will it affect Drinking Water Protected Area safeguard zones?</i>                                                                   | --     | Major Negative    | The option would have a major effect on river and/or coastal water quality and lead to long term or continuous effects on receptors (e.g., designated habitats, protected species or recreational users of rivers and the coastline) that could not reasonably be mitigated. The option results in the deterioration of WFD classification. The option would result in major decreases in groundwater quality.                   |
|                                                                                                                                      | <i>Will it help to minimise risks associated with unsustainable abstraction of ground and surface waters?</i>                          | ?      | Uncertain         | From the level of information available the effect that the option would have on this objective is uncertain.                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                      | <i>Will it impact on any mitigation measures necessary for the water body to achieve or maintain good ecological potential?</i>        |        |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 4.2 To avoid negative impact on surface and groundwater levels and flows, including when this impacts on habitats and/or navigation. | <i>Will it abstract from a water resource with resource availability (with reference to CAMS status and WFD considerations)?</i>       | +++    | Major Positive    | The option would result in major reduction in the demand for water.                                                                                                                                                                                                                                                                                                                                                              |
|                                                                                                                                      | <i>Will it alter the flow or level regime or residence time of surface waters or groundwaters?</i>                                     | ++     | Moderate Positive | The option achieves savings through demand management and does not require abstraction to achieve yield. The option would result in moderate reduction in demand for water.                                                                                                                                                                                                                                                      |
|                                                                                                                                      |                                                                                                                                        | +      | Minor Positive    | The option achieves savings through demand management and does not require abstraction to achieve yield. The option would result in minor reduction in the demand for water.                                                                                                                                                                                                                                                     |
|                                                                                                                                      | <i>Will it enable flexible control over the level of abstraction at short notice in response to changing environmental conditions?</i> | 0      | Neutral           | Drought Plan measure would have no discernible impact on river flows or on water quality or quantity in designated nature sites. Drought Plan measure will not impact on groundwater quality or quantity.                                                                                                                                                                                                                        |
|                                                                                                                                      |                                                                                                                                        | -      | Minor Negative    | Drought Plan measure would lead to minor decreases in river flows. Water quality and quantity in designated nature conservation sites may be impacted by the measure (e.g. – prevents reaching one of the conservation objectives on site, short term decrease in population of designated species). These effects could not be effectively avoided but could be effectively compensated for.                                    |
|                                                                                                                                      | <i>Will it enable a sustainable use of water resources that balances demand for water</i>                                              | --     | Moderate Negative | Drought Plan measure would lead to moderate decreases in river flows. Water quality and quantity in designated nature conservation sites may be impacted by the measure (e.g. – prevents reaching one of the conservation objectives on site, short term decrease in population of designated species). These effects could not be effectively avoided but may be compensated for.                                               |

| Objective                                                                                                                  | Key Questions                                                                                       | Effect | Description       | Illustrative Guidance                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|--------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                            | <i>with environmental protection?</i>                                                               | --     | Major Negative    | Drought Plan measure would lead to major decreases in river flows affecting significant stretches of river. Water quantity in designated nature conservation sites may be impacted by the measure (e.g. – prevents reaching all conservation objectives on site, long term decrease in populations of designated species). These effects could not reasonably be compensated for.<br><br>Drought Plan measure would lead to major decreases in groundwater quality or quantity. |
|                                                                                                                            |                                                                                                     | ?      | Uncertain         | From the level of information available the effect that the option would have on this objective is uncertain                                                                                                                                                                                                                                                                                                                                                                    |
| 4.3 To increase water efficiency and increase resilience of Public Water Supply (PWS) and natural systems to droughts.     | <i>Will it increase efficiency in water use?</i>                                                    | +++    | Major Positive    | The option would result in major improvements in water use efficiency and resource management, ensuring the continued availability of water supplies.                                                                                                                                                                                                                                                                                                                           |
|                                                                                                                            | <i>Will it enable efficient water resource management and ensure maintenance of water supplies?</i> | ++     | Moderate Positive | The option would result in moderate improvements in water use efficiency and resource management, helping to ensure the continued availability of water supplies.                                                                                                                                                                                                                                                                                                               |
|                                                                                                                            |                                                                                                     | +      | Minor Positive    | The option would result in minor improvements in water use efficiency and resource management, helping to ensure the continued availability of water supplies.                                                                                                                                                                                                                                                                                                                  |
|                                                                                                                            |                                                                                                     | 0      | Neutral           | Drought Plan measure would have no discernible impact on river flows or on water quality or quantity in designated nature sites. Drought Plan measure will not impact on groundwater quality or quantity.                                                                                                                                                                                                                                                                       |
|                                                                                                                            |                                                                                                     | -      | Minor Negative    | The option would result in minor impacts on water use efficiency and resource management, potentially affecting the continued availability of water supplies.                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                            |                                                                                                     | --     | Moderate Negative | The option would result in moderate impacts on water use efficiency and resource management, potentially affecting the continued availability of water supplies.                                                                                                                                                                                                                                                                                                                |
|                                                                                                                            |                                                                                                     | --     | Major Negative    | The option would result in major impacts on water use efficiency and resource management, potentially affecting the continued availability of water supplies.                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                            |                                                                                                     | ?      | Uncertain         | From the level of information available the effect that the option would have on this objective is uncertain                                                                                                                                                                                                                                                                                                                                                                    |
| 5.1 To contribute to sustainable use of land and protect and enhance the functionality and quality of soils, including the | <i>Will it protect, maintain and enhance soil function and health?</i>                              | +++    | Major Positive    | No Drought Plan measure is expected to have a major positive effect on achieving this objective.                                                                                                                                                                                                                                                                                                                                                                                |
|                                                                                                                            | <i>Will it avoid damage to and protect geologically important sites?</i>                            | ++     | Moderate Positive | No Drought Plan measure is expected to have a moderate positive effect on achieving this objective.                                                                                                                                                                                                                                                                                                                                                                             |
|                                                                                                                            | <i>Will additional land be required for the development or implementation of the</i>                | +      | Minor Positive    | The Drought Plan measure would be located on a brownfield site and would have no effect on soils or existing land uses.<br>The Drought Plan measure would result in the remediation of contaminated land.                                                                                                                                                                                                                                                                       |
|                                                                                                                            |                                                                                                     | 0      | Neutral           | The Drought Plan measure would have no effect on soils or land use.                                                                                                                                                                                                                                                                                                                                                                                                             |

| Objective                                                    | Key Questions                                                                                                                                          | Effect | Description       | Illustrative Guidance                                                                                                                                                                                                                                        |
|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| protection of high-grade agricultural land and geodiversity. | <i>measure or will the option require below ground works leading to land sterilisation?</i>                                                            | -      | Minor Negative    | The Drought Plan measure would be located on a greenfield site and/or would result in a minor loss of best and most versatile agricultural land and/or or would be in conflict with existing land uses.                                                      |
|                                                              | <i>Will it measure utilise previously developed land?</i>                                                                                              | --     | Moderate Negative | The Drought Plan measure would be located on a greenfield site and/or would result in a moderate loss of best and most versatile agricultural land and/or or would be in conflict with existing land uses.                                                   |
|                                                              | <i>Will it avoid damage to and/or minimise the loss of best and most versatile agricultural land?</i>                                                  | --     | Major Negative    | The Drought Plan measure would be located on a brownfield site and result in a major loss of best and most versatile agricultural land.<br>The option would result in land contamination.                                                                    |
|                                                              | <i>Will it preserve existing carbon stores and enhance them where feasible?</i>                                                                        | ?      | Uncertain         | From the level of information available the effect that the draft Drought Plan Measures would have on this objective is uncertain.                                                                                                                           |
| 6.1 To reduce and minimise air emissions.                    | <i>Will it reduce or minimise air pollutant emissions?</i>                                                                                             | +++    | Major Positive    | The option would result in a major enhancement of the air quality within one or more AQMAs.                                                                                                                                                                  |
|                                                              | <i>Will it increase emissions to air in areas sensitive to emissions (e.g. in proximity to an AQMA or to sensitive habitat or more deprived area)?</i> | ++     | Moderate Positive | The option would result in a moderate enhancement of the air quality within one or more AQMAs.                                                                                                                                                               |
|                                                              |                                                                                                                                                        | +      | Minor Positive    | The option would result in an enhancement of the air quality.                                                                                                                                                                                                |
|                                                              |                                                                                                                                                        | 0      | Neutral           | The option would not result in any effects on Air Quality and AQMAs. Vehicle movements of < 1,000 per annum, assuming that this is equivalent to < 5 per day.                                                                                                |
|                                                              |                                                                                                                                                        | -      | Minor Negative    | The option would result in a decrease of the air quality. Vehicle movements of 1000 to < 7,750, per annum assuming that this is an equivalent to 5 to 30 per day.                                                                                            |
|                                                              |                                                                                                                                                        | --     | Moderate Negative | The option would result in a decrease of the air quality within one or more AQMAs. Vehicle movements of 7,750 to 15,500 per annum, assuming this is equivalent to 30 to 60                                                                                   |
|                                                              |                                                                                                                                                        | --     | Major Negative    | The option would result in a major decrease in the air quality within one or more AQMAs. Vehicle movements > 15,500 per annum, assuming that this is an equivalent of ≥ 60 per day.                                                                          |
|                                                              |                                                                                                                                                        | ?      | Uncertain         | From the level of information available the impact that the option would have on this objective is uncertain                                                                                                                                                 |
| 6.2 To reduce carbon emissions and to adapt to future        | <i>Will it minimise the need for energy?</i>                                                                                                           | +++    | Major Positive    | N/A. No draft Drought Plan measure anticipated to have significant positive impact against this objective.                                                                                                                                                   |
|                                                              | <i>Will it increase efficiency in the use of energy?</i>                                                                                               | ++     | Moderate Positive | The Drought Plan measure will lead to a sustained decrease in greenhouse gas emissions (e.g. leakage reduction measures and demand management measures leading to long term reductions in energy and greenhouse gas emissions associated with water supply). |

| Objective                                                                                                                  | Key Questions                                                                                                                                                                                                | Effect | Description       | Illustrative Guidance                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| changes in climate.                                                                                                        | <i>Will it reduce or minimise greenhouse gas emissions?</i>                                                                                                                                                  | +      | Minor Positive    | The Drought Plan measure will lead to a decrease in greenhouse gas emissions (e.g. leakage reduction measures and demand management measures leading to short-term reductions in energy and greenhouse gas emissions associated with water supply).<br>The Drought Plan measure will increase resilience/decrease vulnerability to climate change in the wider environment (e.g. reduction in water demand).                      |
|                                                                                                                            | <i>Will it reduce vulnerability to risks associated with climate change effects (e.g. reduce the negative effects of droughts)?</i>                                                                          | 0      | Neutral           | The Drought Plan measure would have no discernible impact on greenhouse gas emissions, nor does the measure increase resilience/decrease vulnerability to climate change in the wider environment.                                                                                                                                                                                                                                |
|                                                                                                                            | <i>Will it improve resilience/adaptability to likely effects of climate change, e.g. by increasing water storage capacity, or transferring water from areas with surplus?</i>                                | -      | Minor Negative    | The Drought Plan measure will lead to a minor increase in greenhouse gas emissions (e.g. pumping small volumes of water (<1MI/d) over short distances). The Drought Plan measure does not increase resilience/decrease vulnerability to climate change in the wider environment.                                                                                                                                                  |
|                                                                                                                            |                                                                                                                                                                                                              | --     | Moderate Negative | The Drought Plan measure will lead to a moderate increase in greenhouse gas emissions (e.g. pumping large volumes of water (>1 MI/d) over long distances). The Drought Plan measure does not increase resilience/decrease vulnerability to climate change in the wider environment.                                                                                                                                               |
|                                                                                                                            | <i>Will it seek to improve or manage flood risk?</i>                                                                                                                                                         | --     | Major Negative    | The Drought Plan measure will lead to a major increase in greenhouse gas emissions (e.g. pumping large volumes of water (>2 MI/d) over long distances). The Drought Plan measure does not increase resilience/decrease vulnerability to climate change in the wider environment.                                                                                                                                                  |
|                                                                                                                            |                                                                                                                                                                                                              | ?      | Uncertain         | From the level of information available the impact that the option would have on this objective is uncertain                                                                                                                                                                                                                                                                                                                      |
| 7.1 To conserve and enhance historic assets/cultural heritage and their setting, including archaeological important sites. | <i>Will it avoid damage to and protect the historic environment, heritage assets and their settings, places and spaces that enhance local distinctiveness, landscape/townscape character and appearance?</i> | +++    | Major Positive    | N/A. No Drought Plan measure is anticipated to have major positive impacts against this objective.                                                                                                                                                                                                                                                                                                                                |
|                                                                                                                            |                                                                                                                                                                                                              | ++     | Moderate Positive | N/A. No Drought Plan measure is anticipated to have moderate positive impacts against this objective.                                                                                                                                                                                                                                                                                                                             |
|                                                                                                                            |                                                                                                                                                                                                              | +      | Minor Positive    | N/A. No Drought Plan measure is anticipated to have minor positive impacts against this objective.                                                                                                                                                                                                                                                                                                                                |
|                                                                                                                            |                                                                                                                                                                                                              | 0      | Neutral           | The Drought Plan measure would have no effect on cultural heritage assets or archaeological sites/remains.                                                                                                                                                                                                                                                                                                                        |
|                                                                                                                            | <i>Will it avoid damage to and protect archaeologically important sites?</i>                                                                                                                                 | -      | Minor Negative    | The Drought Plan measure would result in the loss of significance of undesignated heritage assets and/or their setting, notwithstanding remedial recording of any elements affected.<br>The Drought Plan measure would result in limited damage to known, undesignated archaeological sites/remains or geologically important sites with a consequent loss of significance only partly mitigated by archaeological investigation. |
|                                                                                                                            | <i>Will it avoid damage to important wetland areas with potential for paleo-environmental deposits?</i>                                                                                                      | --     | Moderate Negative | The Drought Plan measure will result in the loss of significance of undesignated heritage assets and/or their setting, notwithstanding remedial recording of any elements affected.<br>The Drought Plan measure will diminish significance of designated heritage assets and/or their setting, notwithstanding remedial recording of any elements affected.                                                                       |
|                                                                                                                            |                                                                                                                                                                                                              | --     | Major Negative    | The Drought Plan measure would diminish the significance of designated heritage assets and/or their setting such as:                                                                                                                                                                                                                                                                                                              |



| Objective                                                                                                                      | Key Questions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Effect | Description       | Illustrative Guidance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |        |                   | <ul style="list-style-type: none"> <li>Demolition or further deterioration in the condition of designated heritage assets especially those identified in the Historic England Buildings/Monuments at Risk Register;</li> <li>Loss of public access to important heritage assets and lack of appropriate interpretation.</li> </ul> <p>There would be major damage to known, designated archaeological sites/remains or geologically important sites with a consequent loss of significance only partly mitigated by archaeological investigation.</p> |
|                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ?      | Uncertain         | From the level of information available the impact that the measure would have on this objective is uncertain                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 8.1 To conserve, protect and enhance landscape and townscape character, visual amenity and the setting of national landscapes. | <i>Is the measure likely to have significant visual impacts?</i><br><br><i>Will it avoid negative effects on, and enhance where possible, the special qualities of protected/designated landscapes (including woodlands) or seascapes such as National Parks or National Landscapes?</i><br><br><i>Will it help to protect and improve non-designated areas of natural beauty and distinctiveness (e.g. woodlands) and avoid the loss of landscape features and local distinctiveness?</i><br><br><i>Will it avoid indirect effects on the landscape resulting from effects of abstraction and low river flows?</i> | +++    | Major Positive    | N/A. No Drought Plan measure is anticipated to have major positive impacts against this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ++     | Moderate Positive | N/A. No Drought Plan measure is anticipated to have moderate positive impacts against this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | +      | Minor Positive    | N/A. No Drought Plan measure is anticipated to have minor positive impacts against this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0      | Neutral           | The Drought Plan measure would not result in any new above-ground infrastructure.                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | -      | Minor Negative    | The Drought Plan measure would result in new above ground infrastructure that has a minor negative effect on the local landscape, townscape or seascape.                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | --     | Moderate Negative | <p>The Drought Plan measure would have a moderate negative effect on a designated landscape or feature (i.e. significant visually intrusive infrastructure) whose effects could not be reasonably mitigated.</p> <p>The Drought Plan measure results in new, above ground infrastructure that has a moderate negative effect on the local landscape, townscape or seascape.</p>                                                                                                                                                                       |
|                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | --     | Major Negative    | <p>The Drought Plan measure would result in new above ground infrastructure that has a major negative effect on the local landscape, townscape or seascape.</p> <p>The Drought Plan measure would have a negative effect on designated landscape or feature (i.e. significant visually intrusive infrastructure) whose effects could not be reasonably mitigated.</p>                                                                                                                                                                                 |
|                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ?      | Uncertain         | From the level of information available the effect that the option would have on this objective is uncertain                                                                                                                                                                                                                                                                                                                                                                                                                                          |

# APPENDIX E - ASSESSMENT MATRICES

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|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                             |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-----------------------------|
| Option Name:        | 8001-2 Llyn Cwellyn                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Water Resource Zone Name: | North Eryri Ynys Mon (NEYM) |
|                     | Llyn Cwellyn is a reservoir in North Wales which supplies drinking water as part of the North Eryri Ynys Mon WRZ.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                           |                             |
| Option Description: | <p>The proposed scheme is to retain an abstraction rate of up to 12 Ml/d from the lake between mid-July and December, inclusive, until the lake is at or below water level of 2.6 m below the lake's overflow level. That is, until the lake level is at or below 138.55 m AOD. The normal abstraction licence requires abstraction to reduce to not more than 10 Ml/d when the lake is between 0.8 m and 2.6 m below the spillway crest level (lake top water level). The drought order may be applied for during the period mid-July to December, inclusive. If the water level falls below 138.55 m AOD, no abstraction will be permitted. The normal licensed abstraction will also apply if the water level is at or above 140.35 m AOD and the normal licensed compensation release requirements will apply throughout.</p>                                                                                                                                                                                                      |                           |                             |
|                     | <p>The drought order may remain in force for a period of up to six months, and then can be extended for up to a further six months. However, the period of implementation for this drought order would only be mid July to December, as confirmed with NRW and by water resources modelling carried out by Welsh Water.</p> <p>The option would require a small amount of additional infrastructure. Abstraction from Llyn Cwellyn that is more than 2.0m below the spillway is below the gravity-draw off and pumping is required to transfer water from the lake to the existing intakes in the dam wall, and also to pump water from the lake into the Afon Gwyrfai (for compensation releases). This is expected to be a few tens of metres of pipe from the lake to the intakes and spillway, with associated pumps and a power supply (assumed to be from generators). Additionally, if the water level falls to 1.8m (139.35 m.a.O.D.) below spillway crest level, an additional pump to aid eel passage will be installed.</p> |                           |                             |

| SEA Topics and Objectives     |                                                                                                                                                                                  | Assessment of option |                                                         |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------------------------------------------|---------------------|------------|------------|---------------------|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------|
| SEA Topic                     | SEA Objective                                                                                                                                                                    | Effect Type          | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | Residual significance of effect (likely to remain after reasonable mitigation) |
| Biodiversity, flora and fauna | 1.1 To protect and enhanced designated sites and their qualifying features, biodiversity, priority habitats and species ecological functions, capacity and habitat connectivity. | Negative             | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <b>Effects of Construction</b><br>This option would require the implementation of temporary infrastructure (mobile pumping and a pipeline) to enable water to be taken from Llyn Cwellyn from below the existing intake levels and ensure aid in eel passage. Mobile pumping would maintain discharge to the river (the necessary compensation flow) and enable water to be pumped for treatment at Cwellyn WTW. Llyn Cwellyn and the Afon Gwyrfai are designated as a SSSI and SAC, Afon Gwyrfai a Llyn Cwellyn SAC/SSSI, for their geological and biological features. Features of interest are running and standing water, aquatic plant assemblage and numerous notable species. It is also considered to be one of the best examples in the UK of an oligo trophic to mesotrophic river with submerged beds of aquatic plants. Notable species include macrophytes (floating waterplantain), invertebrates (white-clawed crayfish), benthic macroinvertebrate communities, fish (Arctic charr, Atlantic salmon) and mammals (otter and water voles). The HRA concluded that disruption to habitat connectivity is considered unlikely due to the pipeline being only a few tens of metres in length. Furthermore, any impacts would be short term in nature and, assuming good construction practice (such as the use of sediment traps) is followed, will not result in significant effects on these designated sites (e.g. no above ground permanent infrastructure will result). It is assumed that wherever possible, Welsh Water will locate temporary pumping infrastructure and pipeline on existing areas of hardstanding (roads, parking areas, tracks etc.). Due to the potential for temporary effects arising from disturbance, a minor negative effect has been determined against this objective. |  |                                                                                |
|                               |                                                                                                                                                                                  | Positive             | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <b>Effects of Operation</b><br>As a result of drought order implementation, Llyn Cwellyn will experience small percentage reductions in both minimum water levels and durations of drawdown periods which the EAR assessed as a negligible hydrological impact. Downstream in the Afon Gwyrfai, the drought order does not involve any change to the magnitude of the low flows immediately downstream of the lake, as the statutory compensation release arrangements are unchanged. Overall, the EAR concluded negligible impacts on the downstream watercourse. As a result, the EAR concluded no designated sites or features would be sensitive to changes as a result of the drought order, therefore all effects were assessed as negligible. This includes for the Afon Gwyrfai a Llyn Cwellyn SAC/SSSI as operation will maintain compensation releases to the Afon Gwyrfai, and freshet releases would not be impacted. This will ensure the watercourse and any interest features are protected during drought. The interest features of the lake will be reasonably resilient to fluctuating levels, particularly given the normal range of levels due to the abstraction. A neutral effect has been therefore been determined against this objective in operation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | 0                                                                              |
|                               | 1.2 To avoid and, where required, manage the introduction or spread of invasive and non native                                                                                   | Negative             | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>There are minor construction requirements associated with this option (e.g. pipeline and pumping infrastructure). It is assumed that biosecurity measures will be adhered to throughout any works required and these will be sufficient to avoid any negative effects, therefore, a neutral effect is assessed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | 0                                                                              |
|                               |                                                                                                                                                                                  |                      |                                                         |                     |            |            |                     |                                 | <b>Effects of Operation</b><br>The EAR concluded a negligible hydrological impact, therefore no impacts on INNS are anticipated.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                |
|                               |                                                                                                                                                                                  |                      |                                                         |                     |            |            |                     |                                 | <b>Mitigation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                                                                |

| SEA Topics and Objectives   |                                                                                                                                     |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------------------------------------------------|---------------------|------------|------------|---------------------|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| SEA Topic                   | SEA Objective                                                                                                                       | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Residual significance of effect (likely to remain after reasonable mitigation) |
|                             | invasive and non-native species (INNS).                                                                                             | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | Standard biosecurity measures will be adopted for all construction works.<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | N/A                                                                            |
| Population and human health | 2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing). | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>The construction of this option would have no effect on continuity of clean drinking water supply at time of drought, nor would it affect surface water quality (assuming use of best practice construction techniques). The construction of this option may result in some disturbance to local residents. Noise and vibration may result from the transport of pumps, pipeline and generators to site where the option would be implemented. However, the site is in a rural location with a small number of residential properties (approximately 10) near the area of the works. Given the scale of this option, location of new infrastructure (on the dam wall), and the temporary nature of any health impacts, a neutral effect is recorded against this objective.<br><br><b>Effects of Operation</b><br>No significant noise or disturbance impacts are expected from the operation of this option. For those living, working or visiting the area, there is the potential for noise disturbance through the operation of generators. However, the number of people living within the area is small (about 10 properties within proximity of Llyn Cwellyn and the transfer route). Although noise levels local to generators would be elevated, wider effects are considered negligible.                                                                                                                                                                                                                                                                                                                                 | 0                                                                              |
|                             |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | The operation of this option will provide a gain in deployable output of 2Ml/d within the NEYM resource zone, which will help to ensure that water supply is maintained during periods of drought. Those living, working or visiting the area are unlikely to be directly disturbed by the scheme. Overall, this option has been assessed as having a moderate positive effect on this objective.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ++                                                                             |
|                             | 2.2 To protect and enhance the economic and social needs of the local community.                                                    | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <b>Effects of Construction</b><br>Construction of this option will have no effect on the availability of water for people and visitors to maintain economic activity in times of drought. Whilst there may be some economic benefits associated with construction (e.g. spend in the local supply chain), any effects in this regard would be negligible, commensurate with the scale of construction works.<br>This option would be located within Eryri National Park, an area that provides opportunities for outdoor recreation activities. No disruption to footpaths and access from the construction of temporary above ground infrastructure is anticipated. For this reason, no effects on opportunities for recreation activities during the construction phase are anticipated. Overall, a neutral effect has been determined against this objective.<br><br><b>Effects of Operation</b><br>This option will provide a benefit of 2 Ml/d which will contribute to meeting the water needs of homes, businesses and visitors to this area and helping to maintain economic activity during times of drought.<br>Llyn Cwellyn lies within Eryri National Park. The area east of Llyn Cwellyn has been highlighted as a key amenity area. Recreation activities include angling, canoeing, windsurfing and walking. There is potential for the lake level to lower at a faster rate and to lower levels than without the implementation of the option. This may increase shoreline exposure and impact recreational access. However, due to the temporary nature any impact would be limited to minor negative due to the location within the National Park. | -                                                                              |
|                             |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | Overall a moderate positive and minor negative effect is assessed against this objective in operation.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ++                                                                             |

| SEA Topics and Objectives        |                                                                                                                                                              |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                      |     |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------------------------------------------------|---------------------|------------|------------|---------------------|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| SEA Topic                        | SEA Objective                                                                                                                                                | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Residual significance of effect (likely to remain after reasonable mitigation)                                                                                                                                                                       |     |
| Material assets and resource use | 3.1 To minimise resource use and waste production.                                                                                                           | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>The construction of this option will require temporary infrastructure and the movement of plant and materials (e.g. pumps, pipes etc) to site, which will require fuel. However, it is possible that these materials could be hired or used from existing Welsh Water/contractor stores and could subsequently be used elsewhere once the temporary infrastructure has been removed from site. For this reason and because the equipment required is small scale in nature, a neutral effect has been determined against this objective.<br><br><b>Effects of Operation</b><br>The option involves a proposed temporary relaxation of the low lake level abstraction rate at Llyn Cwellyn. When lake levels have fallen below 0.8m below spillway and the daily abstraction rate has reduced to 10ML/d in the current licence conditions, the option proposes to operate the abstraction at a daily rate of 12ML/d. The lake level at which abstraction ceases would be maintained as per the current licence conditions. Compensation releases would be maintained as per the current licence conditions of 11.4ML/d when lake level is between 0.8m and 2.6m below spillway. Although pumping against a relatively small head, water would need to be pumped to maintain compensation flows and for public water supply purposes. This would require power (assumed to be from diesel generators) and is anticipated to result in minor negative impacts.                                                                                                                               | -                                                                                                                                                                                                                                                    |     |
|                                  |                                                                                                                                                              | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Overall, a minor negative effect has been determined against this objective.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                    | N/A |
| Water                            | 4.1 To protect and enhance the quality of surface, groundwater, estuarine and coastal water and help achieve the objectives of the Water Framework Directive | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>Construction activity associated with this option will not lead to a change in river flows, surface water or groundwater quantity. No effects on water quality would be expected from construction, assuming that best practice construction techniques are followed (e.g. the use of sediment traps). No effects on WFD status of water bodies are expected to result from construction. Overall, a neutral effect has been determined against this objective.<br><br><b>Effects of Operation</b><br>Llyn Cwellyn (WFD water body GB31034002) is a natural glacial moraine lake with managed water levels and controlled outflows in the upper catchment of the Afon Gwyrfai (GB110065054190, downstream of Cwellyn). The ecological status classification of Llyn Cwellyn and Afon Gwyrfai are good (WFD Cycle 3 classification).<br><br>The EAR has concluded that operation of this option will have a negligible hydrological impact on Llyn Cwellyn and Afon Gwyrfai. The increase in the duration of the low flow period in the Afon Gwyrfai is estimated at 3.3%, depending on reservoir abstraction rate and is assessed as negligible. Given that there is no adverse hydrological impact associated with the option, effects on water quality are equally assessed as negligible. Similarly, there would be no flow pressures or water quality pressures that would pose an increased risk to any water-dependent environmental features within the vicinity of Llyn Cwellyn and Afon Gwyrfai. Overall, a neutral effect has therefore been determined against this objective. | 0                                                                                                                                                                                                                                                    |     |
|                                  |                                                                                                                                                              | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Mitigation</b><br>Best practice construction techniques (such as the use of sediment traps) should be used to minimise or avoid the effects of construction on water quality.<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None | N/A |
|                                  | 4.2 To avoid negative impact on surface and groundwater levels and                                                                                           | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>Llyn Cwellyn is a heavily modified lake with managed water levels and controlled outflows in the upper catchment of the Afon Gwyrfai. The implementation of temporary infrastructure (mobile pumping and a pipeline) to enable water to be taken from Llyn Cwellyn from below the existing intake levels will have a negligible hydrological impact on Llyn Cwellyn and Afon Gwyrfai. Mobile pumping would maintain discharge to the river (the necessary compensation flow) and enable water to be pumped for treatment at Cwellyn WTW. A neutral effect has therefore been determined against this objective.<br><br><b>Effects of Operation</b><br>The operation of this option is expected to have a negligible hydrological impact on both Llyn Cwellyn and Afon Gwyrfai. Since there are no significant adverse hydrological effects associated with this option, the impacts on surface and groundwater levels, habitats and navigation during operation are also deemed negligible. Consequently, the overall effect on this objective is assessed as neutral.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0                                                                                                                                                                                                                                                    |     |

| SEA Topics and Objectives  |                                                                                                                                                                                         |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                |
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| SEA Topic                  | SEA Objective                                                                                                                                                                           | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Residual significance of effect (likely to remain after reasonable mitigation) |
| Water                      | flows, including when this impacts on habitats and/or navigation.                                                                                                                       | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | operation are also deemed negligible. Consequently, the overall effect on this objective is assessed as neutral.<br><br><b>Mitigation</b><br>Hydrological monitoring has been recommended in the EAR during the development of drought conditions and implementation of the option, in order to monitor the adherence (or otherwise) of the river system to that expected from the assessment presented in the EAR.<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | N/A                                                                            |
|                            | 4.3 To increase water efficiency and increase resilience of Public Water Supply (PWS) and natural systems to droughts.                                                                  | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>Temporary infrastructure (mobile pumping and a pipeline) will be required to enable water to be taken from Llyn Cwellyn from below the existing intake levels. The construction of this option will have no effect on the existing water resources and has been assessed as having a neutral effect on this objective.<br><br><b>Effects of Operation</b><br>Implementing this option will result in a moderate increase of 2 ML/d in deployable output within the NEYM resource zone, thereby helping to sustain water supply during drought conditions and increasing resilience of natural systems to drought. This is assessed as having a minor positive effect on this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | N/A                                                                            |
|                            |                                                                                                                                                                                         | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | +                                                                              |
| Soil, geology and land use | 5.1 To contribute to sustainable use of land and protect and enhance the functionality and quality of soils, including the protection of high-grade agricultural land and geodiversity. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>Construction works associated with this option are not expected to result in any effects on upland or wetland soils. Temporary (above ground) infrastructure will not require excavation. Overall, a neutral effect has been determined against this objective.<br><br><b>Effects of Operation</b><br>This option could result in more rapid drawdown of levels in the Llyn Cwellyn than under existing licensed conditions. Conceivably, this could lead to drying out of wetland soils adjacent to the lake. However, it is noted that the reservoir could be drawn down to these levels under current licensed operation and therefore it is considered that there will be no additional effects on wetland/marginal soils around the reservoir. The compensation flow would be maintained throughout operation. Compensation releases would be maintained as per the current licence conditions. This would ensure that flows in the Afon Gwyrfai are maintained below the reservoir. This would not be a change from the operation without implementation of the option and therefore no effects on wetland soils marginal to the Afon Gwyrfai are anticipated. Overall, a neutral effect is determined against this objective. | 0                                                                              |
|                            |                                                                                                                                                                                         | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | N/A                                                                            |

| SEA Topics and Objectives |                                                                           | Assessment of option |                                                         |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                |
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| SEA Topic                 | SEA Objective                                                             | Effect Type          | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Residual significance of effect (likely to remain after reasonable mitigation) |
| Air and Climate           | 6.1 To reduce and minimise air emissions.                                 | Negative             | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>The construction of this option will require the movement of plant and materials (e.g. pumps, pipes .etc) to site, which will require vehicle movements and additional fuel, resulting in emissions to air. There will also be construction activities such as excavation likely to result in dust nuisance. Despite the sites rural location, it is popular for recreational and tourism purposes and therefore some receptors may be temporarily affected. Overall, a minor negative effect has been determined against this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -                                                                              |
|                           |                                                                           | Positive             | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Operation</b><br>The number of vehicle trips is anticipated to decrease significantly compared to those during construction. However, there will be emissions from mobile pumping to maintain discharge to the river (the necessary compensation flow) and enable water to be pumped for treatment at Cwellyn WTW. Overall, a minor negative effect has been assessed regarding this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | N/A                                                                            |
| Air and Climate           | 6.2 To reduce carbon emissions and to adapt to future changes in climate. | Negative             | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>The construction of this option will require the movement of plant and materials (e.g. pumps, pipes etc) to site, which will require fuel and result in carbon emissions. There would also be carbon embodied within the plant and temporary infrastructure. However, given that the option will require temporary infrastructure, it is possible that these materials could be hired or used from existing Welsh Water/sub-contractor stores and could subsequently be used elsewhere once the temporary infrastructure has been removed from site. This would lessen the effect of carbon embodied in materials. The construction of this option is not expected to contribute to climate change adaptation. For this reason and because the equipment required is small scale in nature, a minor negative effect has been determined against this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | -                                                                              |
|                           |                                                                           | Positive             | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Operation</b><br>Operational energy requirements and associated carbon emissions have not been quantified by Welsh Water for any options at this stage and therefore a qualitative assessment has been made based on the infrastructure required to implement this option.<br><br>The option involves a proposed temporary relaxation of the low lake level abstraction rate at Llyn Cwellyn. When lake levels have fallen below 0.8m below spillway and the daily abstraction rate has reduced to 10ML/d in the current licence conditions, the option proposes to operate the abstraction at a daily rate of 12ML/d. The lake level at which abstraction ceases would be maintained as per the current licence conditions. Compensation releases would be maintained as per the current licence conditions of 11.4ML/d when lake level is between 0.8m and 2.6m below spillway. Pumping against a relatively small head, up to 23.4 ML/d, would need be required to maintain compensation flows and for public water supply purposes. This would require power (assumed to be from diesel generators) and result in carbon emissions. The amount is unknown but anticipated to be small scale, given the short-term operation.<br><br>UKCP22 climate change scenarios anticipate longer, hotter summers and, in turn, increases in both the frequency and duration of droughts. This option would provide Welsh Water with additional capacity to manage drought conditions and as such is considered to contribute towards climate change adaptation.<br><br>Overall, this option has been assessed as having a mixed minor positive and minor negative effect on this objective. | +                                                                              |
|                           |                                                                           |                      |                                                         |                     |            |            |                     |                                 | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                |



| SEA Topics and Objectives         |                                                                                                                            |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                |
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| SEA Topic                         | SEA Objective                                                                                                              | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Residual significance of effect (likely to remain after reasonable mitigation) |
| Archaeology and Cultural Heritage | 7.1 To conserve and enhance historic assets/cultural heritage and their setting, including archaeological important sites. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>There are three Grade II listed buildings near Llyn Cwellyn - Private Chapel at Plas-y-nant, Snowdon Ranger Station and Pont Cwellyn No 1 and Pont Cwellyn No 2 (also known together as Pont Glan-yr-afon) - and several more along the course of the Afon Gwyrfai. There are also four scheduled monuments in the vicinity of the Afon Gwyrfai. However, reflecting the scale of works and their temporary nature, construction of the option is unlikely to affect heritage features or sites. Overall, given the scale of this option and location of new infrastructure (on the dam wall) a neutral effect is recorded against this objective.<br><br><b>Effects of Operation</b><br>The operation of this option is not anticipated to have a detrimental effect on heritage assets as these contain no water dependant features and any effects on setting would be temporary and reversible. The EAR has also concluded that hydrological impacts would be negligible, therefore, the option will not affect heritage features or sites. A neutral effect is therefore anticipated against this objective.                                                                                                                                                                            | 0                                                                              |
|                                   |                                                                                                                            | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | N/A                                                                            |
| Landscape and Visual Amenity      | 8.1 To conserve, protect and enhance landscape and townscape character and visual amenity.                                 | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <b>Effects of Construction</b><br>Llyn Cwellyn and the upper reaches of the Afon Gwyrfai lie within Eryri National Park. Construction works associated with this option could temporarily affect the special qualities of the National Park and the visual amenity of nearby receptors including visitors. However, although located in a sensitive landscape, due to the small scale and localised nature of works proposed, a minor negative effect has been determined against this objective.<br><br><b>Effects of Operation</b><br>The EAR concluded a small reduction in lake water level and periods of drawdown in Llyn Cwellyn and assessed impacts from the drought order as negligible. The EAR also concluded negligible hydrological impacts on the Afon Gwyrfai as the compensation flow from the lake would not comprise a significant part of the river flow regime at the time of year the order would be implemented, largely due to significant rainfall in the catchment and significant flow accretion in the river. As a result the visual amenity of the reservoir and river are unlikely to be significantly altered and any effects would be temporary and ameliorated once the drought has passed. Therefore, no effects on landscape are assessed and a neutral effect is concluded in this regard. | -                                                                              |
|                                   |                                                                                                                            | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | New above-ground infrastructure would be required for this option, which would consist of a maximum of a few tens of metres of pipeline against the existing dam wall. Pumps and generators would also be required, which would be visible to the public. Overall, due to the presence of above ground infrastructure during operation in the National Park, a minor negative effect is determined against this objective.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | N/A                                                                            |

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                           |                             |
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| Option Name:        | 8001-4 Ffynnon Llugwy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Water Resource Zone Name: | North Eryri Ynys Mon (NEYM) |
| Option Description: | <p>Ffynnon Llugwy is a reservoir in North Wales which supplies drinking water to Bangor and Eastern Anglesey, as part of the North Eryri Ynys Môn WRZ. It lies on the upper Afon Llugwy, a tributary of the River Conwy, in the county of Gwynedd between Carnedd Llewelyn and Clyn Cowlyd in the northern part of Eryri National Park.</p> <p>The drought permit proposed to reduce the compensation flow normally required from the reservoir by up to 0.9MI/d (up to 20%), from 4.5MI/d to 3.6MI/d, to conserve reservoir storage. If granted, this will ensure it can continue to support provision of essential public water supplies through the drought, and to improve the prospect of reservoir recovery over the winter. The period of implementation for this drought permit would be July to December, inclusive. The zone of influence for the drought permit includes the downstream Afon Llugwy as far as the Nant Gwyrdd confluence at Capel Curig. The effects of the drought permit flow reduction at Capel Curig have been assessed as negligible in both the winter and the summer.</p> <p>When a drought permit is in place, monitoring of Ffynnon Llugwy Reservoir level and modelled prediction of its refill may provide confidence that the drought risk has passed. Operation could then revert to the normal licensed compensation release before the end of the permit period.</p> |                           |                             |

| SEA Topics and Objectives     |                                                                                                                                                                                                                                                                                                       | Assessment of option |                                                         |                     |             |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                |
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| SEA Topic                     | SEA Objective                                                                                                                                                                                                                                                                                         | Effect Type          | Scale of effect – geographical &/or population affected | Certainty of effect | Duration    | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Residual significance of effect (likely to remain after reasonable mitigation) |
| Biodiversity, flora and fauna | 1.1 To protect and enhance designated sites and their qualifying features, biodiversity, priority habitats and species ecological functions, capacity and habitat connectivity and to protect and enhance natural capital and the biodiversity and ecosystem services that contribute to the economy. | Negative             | Small                                                   | Medium              | Medium-term | Temporary  | Medium              | High                            | <p><b>Effects of Construction</b></p> <p>Ffynnon Llugwy Reservoir was constructed in 1930. The 8m high earth embankment with a concrete core holds back a maximum usable storage of 2,078MI with a surface area of 16ha (at top water level) at an altitude of 550m. The 2.26km2 catchment draining into the reservoir has high rainfall on a steep mountain landscape.</p> <p>The option would require no additional construction to take place to the existing reservoir and no effects on biodiversity are predicted. In consequence, a neutral effect has been determined against this objective during construction.</p> <p><b>Effects of Operation</b></p> <p>The hydrological impacts associated with the 20% (0.9MI/d) reduction in compensation flow will include moderate reductions of up to 20% in river flows, corresponding to a range of negligible to moderate risk to river habitats in both Reaches 1 and 2 during the period of implementation (July-Dec). Moderate risks include potential for large changes in flow hydraulics due to reducing flow velocity, depth and hydraulic radius as well as large changes in hydrological connectivity, increased marginal exposure and habitat maintenance due to flow reduction.</p> <p>The impacted reaches of the Afon Llugwy partially lie within the Eryri SAC/SSSI. The EAR completed for this option and HRA concluded that implementation of the drought permit would not result in likely significant effects on any designated features of the Eryri SAC, due to no hydrologically dependant qualifying features in the Afon Llugwy. However, the SSSI may be impacted as implementation of the drought permit has potential to have a limited effect on wetted widths, splash zone and humidity within the river reach, thereby potentially impacting the bryophyte assemblage of the SSSI, resulting in moderate, short-term and reversible impacts on the SSSI. The HRA also concluded that all montane and non-hydrologically dependent features will not be impacted by this option due to lack of hydrological connectivity.</p> <p>With regards to designated and notable species the EAR has identified that this option could have negative impacts to fish within the Afon Llugwy due to reduced flows and related changes to water quality. There is the potential for the drought permit to result in a reduction in spawning and juvenile survival due to habitat loss. Given the likely timing of the drought permit, gravels containing alevins and/or early stage fry (typically April-May) are anticipated to be unaffected. The overall impact for Brown trout is assessed as moderate negative. The likelihood of this impact occurring and its exact magnitude is uncertain as it is dependent on the exact timing/duration of the option's implementation, existing flow conditions and the fish species affected; the EAR also notes that there is an absence of reliable data in this regard.</p> | --/?                                                                           |
|                               |                                                                                                                                                                                                                                                                                                       | Positive             | N/A                                                     | N/A                 | N/A         | N/A        | N/A                 | N/A                             | <p>Additional impacts identified within the EAR include minor impacts on bryophytes, macrophytes and phytobenthos and moderate impacts on macroinvertebrates in Reaches 1 and 2.</p> <p>Due to the potential for major impacts on fish species and moderate impacts on aquatic habitats associated with the Eryri SSSI it is expected that the implementation of this option will result in a significant negative effect, with remaining uncertainty. This impact would be short-term, temporary and reversible.</p> <p><b>Mitigation</b></p> <p>Several mitigation measures have been proposed to reduce the potential impacts on fish species during permit operation. These approaches include actions to deter predators and poaching, temporary reversion to the licensed compensation flow, aeration deployment and fish rescue (catch and transfer to fish refugia). Further information on potential mitigation actions is provided in Appendix C to the Ffynnon Llugwy EAR.</p> <p><b>Assumptions</b></p> <p>None</p> <p><b>Uncertainty</b></p> <p>The timing and duration of the option's implementation is unknown, therefore the scale/magnitude of effects on species (including Atlantic salmon and Brown trout) and habitats are unknown.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0                                                                              |

| SEA Topics and Objectives   |                                                                                                                                     |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                |
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| SEA Topic                   | SEA Objective                                                                                                                       | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Residual significance of effect (likely to remain after reasonable mitigation) |
|                             | 1.2 To avoid and, where required, manage the introduction or spread of invasive and non-native species (INNS).                      | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | Effects of Construction<br>There are no construction requirements for this option therefore no effects on the spread of INNS have been considered.<br><br>Effects of Operation<br>No INNS features that are susceptible to drought permit impacts have been identified, therefore INNS have not been considered further.<br><br>Mitigation<br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | N/A                                                                            |
|                             |                                                                                                                                     | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | Assumptions<br>None<br><br>Uncertainty<br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | N/A                                                                            |
| Population and human health | 2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing). | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | Effects of Construction<br>No construction is required for the implementation of this option and therefore no effects are anticipated on water quality or clean drinking water supply. There would be no direct disturbance to local residents, therefore a neutral effect is identified.<br><br>Effects of Operation<br>The operation of this option will provide an additional 0.9Ml/d deployable output for NEYM WRZ. This will help to maintain essential public water supplies during drought conditions, and therefore help maintain public health and well-being. Consistent with the criteria for assessing significance, this has been assessed as having a minor positive effect on this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0                                                                              |
|                             |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | Mitigation<br>None<br><br>Assumptions<br>None<br><br>Uncertainty<br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | +                                                                              |
|                             | 2.2 To protect and enhance the economic                                                                                             | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | Effects of Construction<br>No construction is required for the implementation of this option therefore there will be no effect on the availability of water for local people and visitors to maintain economic activity in times of drought. Further, it is not anticipated that the option would generate any economic benefits (e.g. job creation or supply chain investment).<br><br>Effects of Operation<br>This option will provide an additional yield of 0.9 Ml/d at Ffynnon Llugwy Reservoir. This would help to meet the water supply needs of homes, businesses and visitors in the area during periods of drought, supporting the local and regional economy. Consistent with the definitions of significance used in the assessment, positive effects in this regard are predicted to be minor.<br><br>The operation of the option will reduce compensation flows by a similar amount downstream. Approximately 1.4km downstream of Ffynnon Llugwy Reservoir, the Afon Llugwy is diverted by a stream capture system into the Llyn Cowlyd which transfers water to Llyn Cowlyd Reservoir for hydropower generation. The reduction in flows could in theory affect the availability of water for use under the hydropower generation licence, although any impacts in this regard would be temporary and negligible.<br><br>Ffynnon Llugwy Reservoir lies within Ffyni National Park and there is therefore the potential for the operation of this option to temporarily impact on | 0                                                                              |

| SEA Topics and Objectives        |                                                                                                                                                              |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                |
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| SEA Topic                        | SEA Objective                                                                                                                                                | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Residual significance of effect (likely to remain after reasonable mitigation) |
|                                  | and social needs of the local community.                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <p>Ffynnon Llugwy Reservoir lies within Llyn National Park and there is therefore the potential for the operation of this option to temporarily impact on recreational opportunities within and around the lake, and downstream. Recreational activities in the area include angling, rock climbing and fell walking. Ffynnon Llugwy is noted as a game fishery and the Afon Llugwy holds wild trout populations. Any reduction in wetted width and depth as a result of this option may influence the angling resource on the Afon Llugwy. However, it is noted that water levels will be naturally low in times of drought and impacts will be temporary in nature. This option seeks to maintain the volume of water within the lake. Any recreational activities occurring on the lake are unlikely to have any effect from the reduced compensation. Therefore, the negative effects associated with drought permit implementation on this objective are assessed as neutral.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p> | +                                                                              |
| Material assets and resource use | 3.1 To minimise resource use and waste production.                                                                                                           | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Effects of Construction</b><br/>No construction is required for this option and therefore will not require the use of raw materials. A neutral effect has been assessed against this objective.</p> <p><b>Effects of Operation</b><br/>The option will involve modifications to compensation flow only and no changes to energy use, generated waste or sustainable designs are envisaged. The option will make use of existing infrastructure resulting in a minor positive effect on this objective.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 0                                                                              |
|                                  |                                                                                                                                                              | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | +                                                                              |
| Water                            | 4.1 To protect and enhance the quality of surface, groundwater, estuarine and coastal water and help achieve the objectives of the Water Framework Directive | Negative    | Medium                                                  | Low                 | Short-term | Temporary  | Low                 | Medium                          | <p><b>Effects of Construction</b><br/>There is no construction associated with this option therefore no resulting effects on water quality or WFD status are anticipated.</p> <p><b>Effects of Operation</b><br/>The operation of this option would result in a moderate reduction of flows in Afon Llugwy by up to 20% in both Reach 1 and 2 at any time of the year that the drought permit is implemented. Water quality monitoring data were only available for Reach 2 of the Afon Llugwy, which was consistent with 'High' WFD ecological status, however seasonality and water quality sensitivity to low flow could not be determined for either reach due to insufficient data. Two water quality pressures were identified for Reach 2 associated with minor wastewater discharges. The EAR concluded minor risks to water quality in Reach 2 and negligible risks in Reach 1. Consequently, it is expected that the implementation of this option will result in a minor negative effect, with remaining uncertainty.</p>                                                           | -1?                                                                            |
|                                  |                                                                                                                                                              | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>There are no significant tributaries in the upper Afon Llugwy (Reach 1), therefore, at times when storage in Ffynnon Llugwy Reservoir is below top water level it is assumed the compensation flow is a high proportion of the flow.</p> <p><b>Uncertainty</b><br/>Insufficient water quality monitoring data is available for the period 2015-2024 within the impacted reaches.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | N/A                                                                            |

| SEA Topics and Objectives |                                                                                                                                      |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                |  |
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| SEA Topic                 | SEA Objective                                                                                                                        | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Residual significance of effect (likely to remain after reasonable mitigation) |  |
| Water                     | 4.2 To avoid negative impact on surface and groundwater levels and flows, including when this impacts on habitats and/or navigation. | Negative    | Small                                                   | High                | Short-term | Temporary  | Medium              | Medium                          | <b>Effects of Construction</b><br>No construction is required to implement this option as it makes use of existing infrastructure, therefore no effects in this regard are assessed for this objective.<br><br><b>Effects of Operation</b><br>Operation of this option is expected to result in a moderate reduction of up to 20% in river flows throughout both Reach 1 and 2. This impact is anticipated for any time of the year that the drought permit may be implemented. The resultant risk to river habitat as a result of the reduced flows ranges from negligible to moderate. Moderate impacts are anticipated as a result of changes to flow regime, flow hydraulics, connectivity and variability in usable habitat due to the increased marginal exposure and habitat maintenance due to flow reduction.<br><br>The impact on Flynnon Llugwy Reservoir would be a marginal increase in levels / storage, relative to the position without the drought permit, due to the reduced compensation outflow which would help to conserve water in storage. The length of time of shoreline exposure would be slightly shorter, compared to the baseline drought scenario, as the reservoir would reach top water level slightly earlier during the winter refill period. This would be considered as a minor positive impact. | -                                                                              |  |
|                           |                                                                                                                                      | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | Overall, the effect of this option on surface water levels and flows is assessed as moderate negative and minor positive.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>There are no significant tributaries in the upper Afon Llugwy (Reach 1), therefore at times when storage in Flynnon Llugwy Reservoir is below top water level it is assumed the compensation flow is a high proportion of the flow.<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | +                                                                              |  |
|                           | 4.3 To increase water efficiency and increase resilience of Public Water Supply (PWS) and natural systems to droughts.               | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>No construction is required to implement this option as it makes use of existing infrastructure, therefore no effects in this regard are assessed for this objective.<br><br><b>Effects of Operation</b><br>This option is not a water efficiency measure. However, during operation of this option, a reduction of 20% to the compensation flow to the Afon Llugwy will result in 0.9Ml/d of additional water resource being available for use helping to ensure the maintenance of public water supplies. Therefore, this option is assessed to have a minor positive operational effect.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | N/A                                                                            |  |
|                           |                                                                                                                                      | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | +                                                                              |  |

| SEA Topics and Objectives  |                                                                                                                                                                                         |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                |
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| SEA Topic                  | SEA Objective                                                                                                                                                                           | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Residual significance of effect (likely to remain after reasonable mitigation) |
| Soil, geology and land use | 5.1 To contribute to sustainable use of land and protect and enhance the functionality and quality of soils, including the protection of high-grade agricultural land and geodiversity. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>The option requires no construction and therefore its implementation is not anticipated to result in any effects on land use or soils.<br><br><b>Effects of Operation</b><br>The operation of this option could result in more rapid drawdown of lake levels than under current licensed conditions. Conceivably, this could result in drying out of wetland soils adjacent to the lake. However, it is noted that the lake could be drawn down to these levels under the current licensed operation and therefore it is considered that there will be no additional effects on wetland/marginal soils around the lake.<br><br>Although a compensation flow would be maintained throughout operation, this would be reduced from 4.5 to 3.6M/d. This would ensure that flows in the Afon Llugwy are maintained at some level, however, the flows could be reduced by up to 20% of the existing levels during low flows, causing a reduction in wetted area. This could affect wetland soils marginal to the Afon Llugwy.                                                                                                         | 0                                                                              |
|                            |                                                                                                                                                                                         | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | Overall, a neutral effect is determined against this objective.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>The lake can be drawn down under the current licensed operation.<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | N/A                                                                            |
| Air and Climate            | 6.1 To reduce and minimise air emissions.                                                                                                                                               | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>No construction is required to implement this option and so there is no pathway to cause an increase or reduce air quality emissions as part of this option.<br><br><b>Effects of Operation</b><br>The drought option involves reducing the compensation flow from the reservoir and therefore no impacts to air quality are anticipated. There are no AQMAS within 500m of Ffynnon Llugwy or the impacted reaches. A neutral effect is expected with regard to this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0                                                                              |
|                            |                                                                                                                                                                                         | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | N/A                                                                            |
| Air and Climate            | 6.2 To reduce carbon emissions and to adapt                                                                                                                                             | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>No construction is required to implement this option, therefore a neutral effect has been assessed against this objective.<br><br><b>Effects of Operation</b><br>Operational energy requirements and associated carbon emissions have not been quantified by Welsh Water for any options at this stage and therefore a qualitative assessment has been made based on the infrastructure required to implement this option.<br><br>This option will involve a change to the release rate from the reservoir, which is assumed to be by gravity and penstock arrangement. Water would be treated through existing treatment works and infrastructure. Energy required for treatment and distribution would therefore be unchanged from the current operation and no additional emissions of greenhouse gases are anticipated.<br><br>UKCP22 climate change scenarios anticipate longer, hotter summers and, in turn, increases in both the frequency and duration of droughts. This option would provide Welsh Water with additional capacity to manage drought conditions and as such is considered to contribute towards climate | 0                                                                              |

| SEA Topics and Objectives         |                                                                                                                            |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                |
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| SEA Topic                         | SEA Objective                                                                                                              | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Residual significance of effect (likely to remain after reasonable mitigation) |
| Air and Climate                   | to future changes in climate.                                                                                              | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | change adaptation.<br><br>Overall, a minor postive effect has been assessed against this objective in operation.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>Reservoir compensation release is assumed to be by gravity and penstock arrangement, with no additional energy requirements compared to current operations.<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | +                                                                              |
| Archaeology and Cultural Heritage | 7.1 To conserve and enhance historic assets/cultural heritage and their setting, including archaeological important sites. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>The option will not require construction of new infrastructure and as such, no impacts on this objective during construction have been considered.<br><br><b>Effects of Operation</b><br>A number of sites with historic or cultural designation are in proximity to the Afon Llugwy along the reaches affected by the operation of this option.<br><br>Two scheduled monuments are adjacent to the river, the Bryn-y-Gefeiliu Roman Site and the Afon Llugwy Lead Mill. There are over 80 Listed Buildings within 500m of the impacted reaches of the Afon Llugwy, two of which are Grade I and in the immediate vicinity of the river (Pont Fawr and the Parish Church of St Grwst). There is potential for reduced flows to affect the settings of these heritage assets, particularly where they experience views to/from the Afon Llugwy, however, any effects in this regard would be short-term, temporary and reversible. In consequence an overall neutral effect is assessed.                                                                                                                                                                                                                                                                                                                                                           | 0                                                                              |
|                                   |                                                                                                                            | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None.<br><br><b>Uncertainty</b><br>None.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0                                                                              |
| Landscape and                     | 8.1 To conserve, protect and enhance landscape and townscape                                                               | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>This option would be located within Eryri National Park, an area designated for its landscape character and beauty. However, no construction would be required and therefore no landscape or visual impacts are predicted.<br><br><b>Effects of Operation</b><br>This option would result in the Afon Llugwy exhibiting visually lower flows than under current conditions. Whilst a reduction in flows by up to 20% would be noticeable, lower flows would already be observed in the river as a result of the natural drought conditions.<br><br>The reduction of the compensation release will affect the landscape and visual amenity value within Reaches 1 and 2 by reducing flows by up to 20%. There do not appear to be any public rights of way with views of the Afon Llugwy in close proximity to the watercourse, however, the right to roam (The Countryside and Rights of Way Act 2000) applies to the land in the study area. The reduction in compensation release will be short-term, temporary and reversible.<br><br>The impact on Ffynnon Llugwy Reservoir would be a marginal increase in levels / storage, relative to the position without the drought permit, due to the reduced compensation outflow which would help to conserve water in storage. The length of time of shoreline exposure would be slightly shorter. | -                                                                              |



| SEA Topics and Objectives |                                                  |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                |
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| SEA Topic                 | SEA Objective                                    | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Residual significance of effect (likely to remain after reasonable mitigation) |
| Visual Amenity            | land and townscape character and visual amenity. | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <p>The reduced compensation scheme which would help to conserve water in storage. The length of time of shoreline exposure would be slightly shorter compared to the baseline drought scenario, as the reservoir would reach top water level slightly earlier during the winter refill period. This would be considered as a minor positive impact.</p> <p>Overall, the effect on landscape and visual amenity is assessed as minor negative and minor positive due to the location of the reservoir and impacted reaches within Eryri National Park.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p> | +                                                                              |

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                           |                             |
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| Option Name:        | 8001-7 Llyn Cwellyn                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Water Resource Zone Name: | North Eryri Ynys Mon (NEYM) |
| Option Description: | <p>The proposed scheme is to retain an abstraction rate of up to 12 Ml/d from the lake between September to December, inclusive, until the lake is at or below water level of 3.6 m below the lake's overflow level. That is, until the lake level is at or below 137.55 m AOD. The normal abstraction licence requires abstraction to reduce to not more than 10 Ml/d when the reservoir is between 0.8 m and 2.6 m below the spillway crest level (reservoir top water level). If the water level falls below 137.55 m AOD, no abstraction will be permitted. The normal licensed abstraction will apply if the water level is at or above 140.35 m AOD, and the normal licensed compensation release requirements will apply throughout.</p> <p>The option would require a small amount of additional infrastructure. Abstraction from Llyn Cwellyn that is more than 2.0m below the spillway is below the gravity-draw off and pumping is required to transfer water from the lake to the existing intakes in the dam wall, and also to pump water from the lake into the Afon Gwyrfai (for compensation releases). This is expected to be a few tens of metres of pipe from the lake to the intakes and spillway, with associated pumps and a power supply (assumed to be from generators). If the water level falls to 1.8m (139.35 m AOD) below spillway crest level, an additional pump to aid eel passage will be installed.</p> |                           |                             |

| SEA Topics and Objectives     |                                                                                                                                                                                  |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                |
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| SEA Topic                     | SEA Objective                                                                                                                                                                    | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Residual significance of effect (likely to remain after reasonable mitigation) |
| Biodiversity, flora and fauna | 1.1 To protect and enhanced designated sites and their qualifying features, biodiversity, priority habitats and species ecological functions, capacity and habitat connectivity. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <b>Effects of Construction</b><br>This option would require the implementation of temporary infrastructure (mobile pumping and a pipeline) to enable water to be taken from Llyn Cwellyn from below the existing intake levels and ensure aid in eel passage. Mobile pumping would maintain discharge to the river (the necessary compensation flow) and enable water to be pumped for treatment at Cwellyn WTW. Llyn Cwellyn and the Afon Gwyrfai are designated as a SSSI and SAC, Afon Gwyrfai a Llyn Cwellyn SAC/SSSI, for their geological and biological features. Features of interest are running and standing water, aquatic plant assemblage and numerous notable species. It is also considered to be one of the best examples in the UK of an oligotrophic to mesotrophic river with submerged beds of aquatic plants. Notable species include macrophytes (floating waterplantain), invertebrates (white-clawed crayfish), benthic macroinvertebrate communities, fish (Arctic charr, Atlantic salmon) and mammals (otter and water voles).<br>The HRA concluded that disruption to habitat connectivity is considered unlikely due to the pipeline being only a few tens of metres in length. Furthermore, any impacts would be short term in nature and, assuming good construction practice (such as the use of sediment traps) is followed, will not result in significant and effects on these designated sites (e.g. no above ground permanent infrastructure will result). It is assumed that wherever possible, Welsh Water will locate temporary pumping infrastructure and pipeline on existing areas of hardstanding (roads, parking areas, tracks etc.). Due to the potential for temporary effects arising from disturbance, a minor negative effect has been determined against this objective.<br><br><b>Effects of Operation</b><br>As a result of drought order implementation, Llyn Cwellyn will experience small percentage reductions in both minimum water levels and durations of drawdown periods which the EAR assessed as a negligible hydrological impact. Downstream in the Afon Gwyrfai, the drought order does not involve any change to the magnitude of the low flows immediately downstream of the lake, as the statutory compensation release arrangements are unchanged. Overall, the EAR concluded negligible impacts on the downstream watercourse. As a result, the EAR concluded no designated sites or features would be sensitive to changes as a result of the drought order, therefore all effects were assessed as negligible. This includes for the Afon Gwyrfai a Llyn Cwellyn SAC/SSSI as operation will maintain compensation releases to the Afon Gwyrfai, and freshet releases would not be impacted. This will ensure the watercourse and any interest features are protected during drought. The interest features of the lake will be reasonably resilient to fluctuating levels, particularly given the normal range of levels due to the abstraction. A neutral has been therefore been determined against this objective in operation. |                                                                                |
|                               |                                                                                                                                                                                  | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <b>Mitigation</b><br>Best practice construction techniques (such as the use of sediment traps) should be used to minimise or avoid effects of construction on the designated sites.<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0                                                                              |
|                               | 1.2 To avoid and, where required, manage the introduction or spread of                                                                                                           | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>There are minor construction requirements associated with this option (e.g. pipeline and pumping infrastructure). It is assumed that biosecurity measures will be adhered to throughout any required works and these will be sufficient to avoid any negative effects, therefore, a neutral effect is assessed.<br><br><b>Effects of Operation</b><br>The EAR concluded a negligible hydrological impact, therefore, no impacts on INNS are anticipated.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0                                                                              |

| SEA Topics and Objectives   |                                                                                                                                     |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                       |
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| SEA Topic                   | SEA Objective                                                                                                                       | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Residual significance of effect <i>(likely to remain after reasonable mitigation)</i> |
|                             | Introduction or spread of invasive and non-native species (INNS).                                                                   | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>Standard biosecurity measures will be adopted for all construction works.<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | N/A                                                                                   |
| Population and human health | 2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing). | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>The construction of this option would have no effect on continuity of clean drinking water supply at time of drought, nor would it affect surface water quality (assuming use of best practice construction techniques). The construction of this option may result in some disturbance to local residents. Noise and vibration may result from the transport of pumps, pipeline and generators to site where the option would be implemented. However, the site is in a rural location with a small number of residential properties (approximately 10) near the area of the works. Given the scale of this option, location of new infrastructure (on the dam wall), and the temporary nature of any health impacts, a neutral effect is recorded against this objective.<br><br><b>Effects of Operation</b><br>No significant noise or disturbance impacts are expected from the operation of this option. For those living, working or visiting the area, there is the potential for noise disturbance through the operation of generators. However, the number of people living within the area is small (about 10 properties within proximity of Llyn Cwellyn and the transfer route). Although noise levels local to generators would be elevated, wider effects are considered negligible.                                                                                                                                                                                                                                                                                                                                             | 0                                                                                     |
|                             |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | The operation of this option will provide a gain in deployable output of 2Ml/d within the NEYM resource zone, which will help to ensure that water supply is maintained during periods of drought. Those living, working or visiting the area are unlikely to be directly disturbed by the scheme. Overall, this option has been assessed as having a moderate positive effect on this objective.<br><br><b>Mitigation</b><br>Best practice construction methods.<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ++                                                                                    |
|                             | 2.2 To protect and enhance the economic and social needs of the local community.                                                    | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <b>Effects of Construction</b><br>Construction of this option will have no effect on the availability of water for people and visitors to maintain economic activity in times of drought. Whilst there may be some economic benefits associated with construction (e.g. spend in the local supply chain), any effects in this regard would be negligible, commensurate with the scale of construction works. This option would be located within Snowdonia National Park, an area that provides opportunities for outdoor recreation activities. No disruption to footpaths and access from the construction of temporary above ground infrastructure is anticipated. For this reason, no effects on opportunities for recreation activities during the construction phase are anticipated. Overall, a neutral effect has been determined against this objective.<br><br><b>Effects of Operation</b><br>This option will provide an additional yield of 2 Ml/d which will contribute to meeting the water needs of homes, businesses and visitors to this area and helping to maintain economic activity during times of drought. Llyn Cwellyn lies within Snowdonia National Park. The area east of Llyn Cwellyn has been highlighted as a key amenity area. Recreation activities include angling, canoeing, windsurfing and walking. There is potential for the lake level to lower at a faster rate and to lower levels than without the implementation of the option. This may increase shoreline exposure and impact recreational access. However, due to the temporary nature any impact would be limited to minor negative due to the location within the National Park. | -                                                                                     |
|                             |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | Overall a moderate positive and minor negative effect is assessed against this objective in operation.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ++                                                                                    |

| SEA Topics and Objectives        |                                                                                                                                                              |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                |
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| SEA Topic                        | SEA Objective                                                                                                                                                | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Residual significance of effect (likely to remain after reasonable mitigation) |
| Material assets and resource use | 3.1 To minimise resource use and waste production.                                                                                                           | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>The construction of this option will require temporary infrastructure and the movement of plant and materials (e.g. pumps, pipes etc) to site, which will require fuel. However, it is possible that these materials could be hired or used from existing Welsh Water/contractor stores and could subsequently be used elsewhere once the temporary infrastructure has been removed from site. For this reason and because the equipment required is small scale in nature, a neutral effect has been determined against this objective.<br><br><b>Effects of Operation</b><br>The option involves a proposed temporary relaxation of the low lake level abstraction rate at Llyn Cwellyn. When lake levels have fallen below 0.8m below spillway and the daily abstraction rate has reduced to 10Ml/d in the current licence conditions, the option proposes to operate the abstraction at a daily rate of 12Ml/d. The lake level at which abstraction ceases would be maintained as per the current licence conditions. Compensation releases would be maintained as per the current licence conditions of 11.4Ml/d when lake level is between 0.8m and 2.6m below spillway. Although pumping against a relatively small head, a minor amount would need to be pumped to maintain compensation flows and for public water supply purposes. This would require power (assumed to be from diesel generators).                                                                                                                                                                             | -                                                                              |
|                                  |                                                                                                                                                              | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | Overall, a minor negative effect has been determined against this objective.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | N/A                                                                            |
| Water                            | 4.1 To protect and enhance the quality of surface, groundwater, estuarine and coastal water and help achieve the objectives of the Water Framework Directive | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>Construction activity associated with this option will not lead to a change in river flows, surface water or groundwater quantity. No effects on water quality would be expected from construction, assuming that best practice construction techniques are followed (e.g. the use of sediment traps). No effects on WFD status of water bodies are expected to result from construction. Overall, a neutral effect has been determined against this objective.<br><br><b>Effects of Operation</b><br>Llyn Cwellyn (WFD water body GB31034002) is a natural glacial moraine lake with managed water levels and controlled outflows in the upper catchment of the Afon Gwyrfai (GB110065054190, downstream of Cwellyn). The ecological status classification of Llyn Cwellyn and Afon Gwyrfai are good (WFD Cycle 3 classification).<br><br>The EAR has concluded that operation of this option will have a negligible hydrological impact on Llyn Cwellyn and Afon Gwyrfai. The increase in the duration of the low flow period in the Afon Gwyrfai is estimated at 3.3%, depending on reservoir abstraction rate and is assessed as negligible. Given that there is no adverse hydrological impact associated with the option, effects on water quality are equally assessed as negligible. Similarly, there would be no flow pressures or water quality pressures that would pose an increased risk to any water-dependent environmental features within the vicinity of Llyn Cwellyn and Afon Gwyrfai. Overall, a neutral effect has therefore been determined against this objective. | 0                                                                              |
|                                  |                                                                                                                                                              | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>Best practice construction techniques (such as the use of sediment traps) should be used to minimise or avoid the effects of construction on water quality.<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | N/A                                                                            |

| SEA Topics and Objectives |                                                                                                                                      | Assessment of option |                                                         |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Residual significance of effect (likely to remain after reasonable mitigation) |
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| SEA Topic                 | SEA Objective                                                                                                                        | Effect Type          | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                |
| Water                     | 4.2 To avoid negative impact on surface and groundwater levels and flows, including when this impacts on habitats and/or navigation. | Negative             | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>Llyn Cwellyn is a heavily modified lake with managed water levels and controlled outflows in the upper catchment of the Afon Gwyrfa. The implementation of temporary infrastructure (mobile pumping and a pipeline) to enable water to be taken from Llyn Cwellyn from below the existing intake levels will have a negligible hydrological impact on Llyn Cwellyn and Afon Gwyrfa. Mobile pumping would maintain discharge to the river (the necessary compensation flow) and enable water to be pumped for treatment at Cwellyn WTW. A neutral effect has therefore been determined against this objective.                                                                                                                                                     | 0                                                                              |
|                           |                                                                                                                                      | Positive             | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Operation</b><br>The operation of this option is expected to have a negligible hydrological impact on both Llyn Cwellyn and Afon Gwyrfa. Since there are no significant adverse hydrological effects associated with this option, the impacts on surface and groundwater levels, habitats and navigation during operation are also deemed negligible. Consequently, the overall effect on this objective is assessed as neutral.                                                                                                                                                                                                                                                                                                                                                      | N/A                                                                            |
|                           | 4.3 To increase water efficiency and increase resilience of Public Water Supply (PWS) and natural systems to droughts.               | Negative             | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>Temporary infrastructure (mobile pumping and a pipeline) will be required to enable water to be taken from Llyn Cwellyn from below the existing intake levels. The construction of this option will have no effect on the existing water resources and has been assessed as having a neutral effect on this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                            | N/A                                                                            |
|                           |                                                                                                                                      | Positive             | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Operation</b><br>Implementing this option will result in a moderate increase of 2 Ml/d in deployable output within the NEYM resource zone, thereby helping to sustain water supply during drought conditions and increasing resilience of natural systems to drought. This is assessed as having a minor positive effect on this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                           | +                                                                              |
|                           | 5.1 To contribute to sustainable use of land and protect and enhance the functionality and quality                                   | Negative             | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>Construction works associated with this option are not expected to result in any effects on upland or wetland soils. Temporary (above ground) infrastructure will not require excavation. Overall, a neutral effect has been determined against this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0                                                                              |
|                           |                                                                                                                                      |                      |                                                         |                     |            |            |                     |                                 | <b>Effects of Operation</b><br>This option could result in more rapid drawdown of levels in the Llyn Cwellyn than under current licensed conditions. Conceivably, this could lead to drying out of wetland soils adjacent to the lake. However, it is noted that the reservoir could be drawn down to these levels under current licensed operation and therefore it is considered that there will be no additional effects on wetland/marginal soils around the reservoir. The compensation flow would be maintained throughout operation. Compensation releases would be maintained as per the current licence conditions. This would ensure that flows in the Afon Gwyrfa are maintained below the reservoir. This would not be a change from the operation without implementation of the option |                                                                                |

| SEA Topics and Objectives |                                                                                                                |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                       |
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| SEA Topic                 | SEA Objective                                                                                                  | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Residual significance of effect <i>(likely to remain after reasonable mitigation)</i> |
| Land and land use         | Functionality and quality of soils, including the protection of high-grade agricultural land and geodiversity. | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | and therefore no effects on wetland soils marginal to the Afon Gwyrfal are anticipated. Overall, a neutral effect is determined against this objective.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | N/A                                                                                   |
| Air and Climate           | 6.1 To reduce and minimise air emissions.                                                                      | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>The construction of this option will require the movement of plant and materials (e.g. pumps, pipes etc) to site, which will require vehicle movements and fuels, resulting into emissions to the air. There will also be construction activities such as excavation likely to result into dust nuisance. Despite the sites rural location, it is popular for recreational and tourism purposes, therefore, some receptors may be impacted temporarily. Overall, a minor negative effect has been determined against this objective.<br><br><b>Effects of Operation</b><br>The number of vehicle trips is anticipated to decrease significantly compared to those during construction. However, there will be emissions from mobile pumping to maintain discharge to the river (the necessary compensation flow) and enable water to be pumped for treatment at Cwellyn WTW. Overall, this has been assessed as having a minor negative impact regarding this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                       |
|                           |                                                                                                                | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | N/A                                                                                   |
| Air and Climate           | 6.2 To reduce carbon emissions and to adapt                                                                    | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>The construction of this option will require the movement of plant and materials (e.g. Pumps, pipes etc) to site, which will require fuel and result in carbon emissions. There would also be carbon embodied within the plant and temporary infrastructure. However, given that the option will require temporary infrastructure, it is possible that these materials could be hired or used from existing Welsh Water/sub-contractor stores and could subsequently be used elsewhere once the temporary infrastructure has been removed from site. This would lessen the effect of carbon embodied in materials. The construction of this option is not expected to contribute to climate change adaptation. For this reason and because the equipment required is small scale in nature, a minor negative effect has been determined against this objective.<br><br><b>Effects of Operation</b><br>Operational energy requirements and associated carbon emissions have not been quantified by Welsh Water for any options at this stage and therefore a qualitative assessment has been made based on the infrastructure required to implement this option.<br><br>The option involves a proposed temporary relaxation of the low lake level abstraction rate at Llyn Cwellyn. When lake levels have fallen below 0.8m below spillway and the daily abstraction rate has reduced to 10MI/d in the current licence conditions, the option proposes to operate the abstraction at a daily rate of 12MI/d. The lake level at which abstraction ceases would be maintained as per the current licence conditions. Compensation releases would be maintained as per the current licence conditions of 11.4MI/d when lake level is between 0.8m and 2.6m below spillway. Pumping against a relatively small head, up to 23.4 MI/d, would need be required to maintain compensation flows and for public water supply purposes. This |                                                                                       |

| SEA Topics and Objectives         |                                                                                                                            |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                       |
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| SEA Topic                         | SEA Objective                                                                                                              | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Residual significance of effect <i>(likely to remain after reasonable mitigation)</i> |
| Air and Climate                   | to future changes in climate.                                                                                              | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p>would require power (assumed to be from diesel generators) and result in carbon emissions. The amount is unknown but anticipated to be small scale, given the short-term operation.</p> <p>UKCP22 climate change scenarios anticipate longer, hotter summers and, in turn, increases in both the frequency and duration of droughts. This option would provide Welsh Water with additional capacity to manage drought conditions and as such is considered to contribute towards climate change adaptation.</p> <p>Overall, this option has been assessed as having a mixed minor positive and minor negative effect on this objective.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | +                                                                                     |
| Archaeology and Cultural Heritage | 7.1 To conserve and enhance historic assets/cultural heritage and their setting, including archaeological important sites. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <p><b>Effects of Construction</b></p> <p>There are three Grade II listed buildings near Llyn Cwellyn - Private Chapel at Plas-y-nant, Snowdon Ranger Station and Pont Cwellyn No 1 and Pont Cwellyn No 2 (also known together as Pont Glan-yr-afon) - and several more along the course of the Afon Gwyrfai. There are also four scheduled monuments in the vicinity of the Afon Gwyrfai. However, reflecting the scale of works and their temporary nature, construction of the option is unlikely to have an impact on heritage features or sites (assuming use of best practice construction techniques). Overall, given the scale of this option and location of new infrastructure (on the dam wall) a neutral effect is recorded against this objective.</p> <p><b>Effects of Operation</b></p> <p>The operation of this option is not anticipated to have a detrimental effect on heritage assets as these contain no water dependant features and any effects on setting would be temporary and reversible. The EAR has also concluded that hydrological impacts would be negligible, therefore the option will not affect heritage features or sites. A neutral effect is therefore anticipated against this objective.</p>                                                                                                             | 0                                                                                     |
|                                   |                                                                                                                            | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | N/A                                                                                   |
| Landscape and                     | 8.1 To conserve, protect and enhance landscape and townscape.                                                              | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <p><b>Effects of Construction</b></p> <p>Llyn Cwellyn and the upper reaches of the Afon Gwyrfai lie within Snowdonia National Park. Construction works associated with this option could temporarily affect the special qualities of the National Park and the visual amenity of nearby receptors including visitors. However, although located in a sensitive landscape, due to the small scale and localised nature of works proposed, a minor negative effect has been determined against this objective.</p> <p><b>Effects of Operation</b></p> <p>The EAR concluded a small reduction in lake water level and periods of drawdown in Llyn Cwellyn and assessed impacts from the drought order as negligible. The EAR also concluded negligible hydrological impacts on the Afon Gwyrfai as the compensation flow from the lake would not comprise a significant part of the river flow regime at the time of year the order would be implemented, largely due to significant rainfall in the catchment and significant flow accretion in the river. As a result the visual amenity of the reservoir and river are unlikely to be significantly altered and any effects would be temporary and ameliorated once the drought has passed. Therefore no effects on landscape are assessed and a neutral effect is concluded in this regard.</p> | -                                                                                     |



| SEA Topics and Objectives |                                             |             | Assessment of option                                    |                     |          |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                |
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| SEA Topic                 | SEA Objective                               | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Residual significance of effect (likely to remain after reasonable mitigation) |
| Visual Amenity            | and townscape character and visual amenity. | Positive    | N/A                                                     | N/A                 | N/A      | N/A        | N/A                 | N/A                             | <p>New above-ground infrastructure would be required for this option, which would consist of a maximum of a few tens of metres of pipeline against the existing dam wall. Pumps and generators would also be required, which would be visible to the public. Overall, due to the presence of above ground infrastructure during operation in the National Park, a minor negative effect is determined against this objective.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p> | N/A                                                                            |

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                           |               |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------|
| Option Name:        | 8012-1 Llyn Aled                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Water Resource Zone Name: | Clwyd Coastal |
| Option Description: | <p>The proposed drought permit is to use some of Llyn Aled's dead storage, to conserve the downstream Aled Isaf Reservoir storage at not less than 20% capacity and prolong its function to provide regulation support to the Afon Aled and the abstraction at Bryn Aled. It will help ensure there is enough resource to maintain essential public water supplies throughout a severe drought without the need for more extreme customer side measures. The scheme will also help improve the prospect of reservoir recovery over the winter. The permit could be applied for during the period September to December, inclusive. The pumping rate would not be more than 20Ml/d and water would be discharged to the Afon Aled at Llyn Aled dam, and so follow the normal release route from Llyn Aled and Aled Isaf.</p> <p>The scheme will require the construction of temporary pumping arrangement in Llyn Aled, and a discharge arrangement to the Afon Aled. It is expected the discharge location should align as closely as possible to the normal means of making release from Llyn Aled to the Afon Aled. The temporary works will be designed in advance of the need for the permit and further environmental assessment for the construction, operation and decommissioning of the pumps and any associated pipeline will be completed at the time of application for a drought permit. These works are not considered in the drought permit EAR but have been assessed in the SEA at a high level.</p> |                           |               |

| SEA Topics and Objectives     |                                                                                                                                                                                                                                                                                                       |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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| SEA Topic                     | SEA Objective                                                                                                                                                                                                                                                                                         | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Residual significance of effect (likely to remain after reasonable mitigation)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Biodiversity, flora and fauna | 1.1 To protect and enhance designated sites and their qualifying features, biodiversity, priority habitats and species ecological functions, capacity and habitat connectivity and to protect and enhance natural capital and the biodiversity and ecosystem services that contribute to the economy. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <b>Effects of Construction</b><br>Llyn Aled and the Afon Aled, where pumping and discharge infrastructure would be required near the dam, are not themselves designated nature conservation sites. Surrounding its shoreline and extending to the shoreline of Aled Isaf to the north is the Mynydd Hiraethog SSSI. The SSSI is designated for heathland and blanket mire habitats and associated bird, lichen and insect species. The SSSI is not designated for water flow or other aquatic reasons. The pumping and discharge arrangement is anticipated to be small scale and construction effects can be minimised by routing any pipeline required along the patch of grazing field between the dam and watercourse (<40m apart). It is also assumed that pumping infrastructure could also be sited on hardstanding areas next to the access road at Llyn Aled. It is considered that effects on the surrounding SSSI can be mitigated by routing the pipeline along the roadway, through grazing fields (not areas of heathland or blanket mire habitats) and with the use of best practice construction techniques. However, the immediate proximity of any infrastructure to the sensitive features of the Mynydd Hiraethog SSSI means that the potential for a negative effect cannot be ruled out and consequently a minor negative uncertain effect is identified.<br><br><b>Effects of Operation</b><br>The EAR concluded negligible hydrological impacts during the period of implementation, September to December, inclusive. The water level within the reservoir would reduce by ~6.8% below minimum bed level which is assessed as negligible impact, noting the marginal habitat within the reservoir would already be exposed and there remains significant volume and depth of water within the reservoir. A negligible impact is also identified for the hydrological regime and river habitats in the channelised section of the Afon Aled between Llyn Aled Reservoir and Aled Isaf Reservoir. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                               |                                                                                                                                                                                                                                                                                                       | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | As a result, no designated sites or species were assessed as sensitive enough to impacts from the drought option so as to require further assessment. The HRA concluded no qualifying features for sites that were screened as hydrologically dependent or connected to the option, or the sites are sufficiently distanced such that no hydrological impacts will occur. This includes the Liverpool Bae/Bae Lerpwl SPA (located 19km downstream of Aled Isaf) where all features are marine and will not be impacted by the option, as such there is no likelihood for significant effects. Due to the lack of hydrological impact identified, a neutral effect has been assessed on this objective during operation.<br><br><b>Mitigation</b><br>Best practice construction techniques are followed to minimise impacts on ecological habitats and water quality.<br><br><b>Assumptions</b><br>It is assumed that temporary pumping/generators and associated pipework would be located away from sensitive receptors including following the grazing field and on hardstanding ground where required. It is assumed that best practice construction techniques are followed to minimise impacts on ecological habitats and water quality.<br><br><b>Uncertainty</b><br>None. |
|                               | 1.2 To avoid and, where required, manage the introduction or spread of                                                                                                                                                                                                                                | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>There are minor construction requirements associated with this option (e.g. temporary pumping and discharge arrangement infrastructure). It is assumed that biosecurity measures will be adhered to throughout any works required and these will be sufficient to avoid any negative effects, therefore a neutral effect is assessed.<br><br><b>Effects of Operation</b><br>The EAR concluded a negligible hydrological impact, therefore no impacts on INNS are anticipated.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

| SEA Topics and Objectives   |                                                                                                                                     |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                |
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| SEA Topic                   | SEA Objective                                                                                                                       | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Residual significance of effect (likely to remain after reasonable mitigation) |
|                             | Introduction or spread of invasive and non-native species (INNS).                                                                   | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>Standard biosecurity measures will be adopted for all construction works.<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | N/A                                                                            |
| Population and human health | 2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing). | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>The siting of mobile pumps, diesel generator and abstraction and discharge infrastructure would have no effect on continuity of clean drinking water supply at time of drought, nor would it affect surface water quality (assuming best practice construction techniques are applied). Noise and vibration may result from bringing pumps, pipes and generators to site. However, it is noted that the site is in an extremely rural location with no residential properties in the immediate vicinity of the site nor directly on roads that would be used for access. Overall, a neutral effect has been identified for this objective during construction.<br><br><b>Effects of Operation</b><br>This option is to use dead storage in Llyn Aled Reservoir to conserve downstream Aled Isaf Reservoir storage and prolong its function to provide regulation support to the Afon Aled and the abstraction at Bryn Aled. This option will provide up to 20Ml/d to help ensure there is enough resource to maintain essential public water supplies during a severe drought and avoid the need for more extreme customer side measures. This is anticipated to have a significant positive effect on supporting human health and wellbeing. There is the potential for noise disturbance through the operation of generators. However, the extremely rural location of the site, with no residential properties in the immediate vicinity, such effects are considered to be negligible. Overall, a major positive effect has been identified for this objective. | 0                                                                              |
|                             |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | High                | Medium                          | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>Best practice construction techniques applied.<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | +++                                                                            |
|                             | 2.2 To protect and enhance the economic and social needs of the local community.                                                    | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>The construction phase of this option will have no effect on the availability of water for people and visitors to maintain economic activity in times of drought. No conceivable effects on the local or regional economy are anticipated as a result of the construction of this option. This option would be located in an area that provides opportunities for outdoor recreation activities, for example fishing at Llyn Aled and Aled Isaf. Although there may be local disruption to footpaths and access from the siting of infrastructure, footpath/road diversions will be possible. Overall, a neutral negative effect has been identified for this objective.<br><br><b>Effects of Operation</b><br>This option will provide an additional water yield through pumping of up to 20Ml/d from Llyn Aled to Aled Isaf Reservoir to support the downstream abstraction in the Afon Aled at Bryn Aled. The additional volume would enable the continuation of the statutory compensation release and any required regulation release to support downstream abstractions. This option will conserve helping to meet the needs of homes, businesses and visitors to this area. Within the definitions of significance thresholds, this is considered to be a major positive effect.                                                                                                                                                                                                                                                                             | 0                                                                              |
|                             |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | High                | Medium                          | There are potential for negative effects to Llyn Aled as a reduction in water levels may impact on use of the reservoir for fishing. However, the EAR concluded negligible impact on the water level within the reservoir as there remains significant volume and depth of water within the reservoir, and therefore a neutral negative effect is anticipated.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | +++                                                                            |

| SEA Topics and Objectives        |                                                                                                                                                              |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                       |
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| SEA Topic                        | SEA Objective                                                                                                                                                | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Residual significance of effect <i>(likely to remain after reasonable mitigation)</i> |
| Material assets and resource use | 3.1 To minimise resource use and waste production.                                                                                                           | Negative    | Small                                                   | Medium              | Short-term | Permanent  | High                | Medium                          | <b>Effects of Construction</b><br>This option will require the movement of plant and materials (e.g. pumps etc.) to site, which will consume fuel. There would also be materials within the new infrastructure (plastics and metals). This has been assessed as a minor negative effect against this objective. However, there is the potential to mitigate such effects through the rental and reuse of the equipment used on site.<br><br><b>Effects of Operation</b><br>The option involves pumping water from Llyn Aled to the Afon Aled to enable the continuation of the statutory compensation release and any required regulation release from Aled Isaf to support abstraction downstream the Afon Aled at Bryn Aled. This will require additional infrastructure with associated energy use. The amount pumped will not exceed 20ML/d and the distance is considered small, therefore a minor negative effect has been assessed, although there is uncertainty over the amount of time the drought option will operate for. Overall a minor negative uncertain effect has been assessed against this objective.                                                                                                                                                                                                   | -/?                                                                                   |
|                                  |                                                                                                                                                              | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>The rental or re-use of onsite equipment.<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>The total amount of water that will be pumped and over what length of time.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | N/A                                                                                   |
| Water                            | 4.1 To protect and enhance the quality of surface, groundwater, estuarine and coastal water and help achieve the objectives of the Water Framework Directive | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>Temporary pumps and discharge infrastructure will need to be constructed in order to transfer water from Llyn Aled Reservoir to the Afon Aled as part of the implementation of this drought permit. Construction is not anticipated to lead to a change in river flows, surface water or groundwater quantity. No effects on water quality would be expected from construction activities, assuming that best practice construction techniques are followed (e.g. the use of sediment traps). No effects on WFD status are expected to result from construction. Therefore, a neutral effect has been identified.<br><br><b>Effects of Operation</b><br>The EAR concluded negligible hydrological impacts for Llyn Aled Reservoir and Afon Aled during the period that the drought permit is in place. As a result, impacts on water quality are considered negligible and a neutral effect is assessed.                                                                                                                                                                                                                                                                                                                                                                                  | 0                                                                                     |
|                                  |                                                                                                                                                              | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>That best practice construction techniques are followed.<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | N/A                                                                                   |
|                                  | 4.2 To avoid negative impact on surface and groundwater levels and                                                                                           | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>Temporary pumps and discharge infrastructure will need to be constructed in order to transfer water from Llyn Aled Reservoir to the Afon Aled as part of the implementation of this drought permit. Construction is not anticipated to lead to a change in river flows. No effects on WFD status are expected to result from construction. Therefore, a neutral effect has been identified.<br><br><b>Effects of Operation</b><br>The EAR concluded negligible hydrological impacts during the period of implementation, September to December, inclusive. The water level within the reservoir would reduce by ~6.8% below minimum bed level which is assessed as negligible impact, noting the marginal habitat within the reservoir would already be exposed and there remains significant volume and depth of water within the reservoir. A negligible impact is also identified for the hydrological regime and river habitats in the channelised section of the Afon Aled between Llyn Aled Reservoir and Aled Isaf Reservoir. As a result, a neutral negative effect is assessed for this objective during operation.<br><br>The impact of the pumped transfer from Llyn Aled Reservoir on Aled Isaf Reservoir would be an increase in storage of 300 Ml, relative to the position | 0                                                                                     |

| SEA Topics and Objectives  |                                                                                                                                                                                         |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                |
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| SEA Topic                  | SEA Objective                                                                                                                                                                           | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Residual significance of effect (likely to remain after reasonable mitigation) |
| Water                      | flows, including when this impacts on habitats and/or navigation.                                                                                                                       | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | without the drought permit. The additional volume would enable the continuation of the statutory compensation release and any required regulation release to support downstream abstractions for a further 15 days without leading to any increased drawdown in Aled Isaf Reservoir.<br><br>Overall, a minor positive effect is assessed for this objective due to the potential to increase levels/storage in Aled Isaf Reservoir.<br><br><b>Mitigation</b><br>None.<br><br><b>Assumptions</b><br>That best practice construction techniques are followed.<br><br><b>Uncertainty</b><br>None.                                                                                                                                                                                                                                                                                                    | +                                                                              |
|                            | 4.3 To increase water efficiency and increase resilience of Public Water Supply (PWS) and natural systems to droughts.                                                                  | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>The construction associated with this option will have no effect on water efficiency or resilience to drought.<br><br><b>Effects of Operation</b><br>This option is not a water efficiency measure. However, during operation of this option, use pumping of dead storage from Llyn Aled Reservoir (up to 20Ml/d) will enable the continuation of the statutory compensation and regulatory releases to support downstream abstraction, helping to ensure the maintenance of public water supplies during extreme drought and avoiding the need to use more extreme customer measures. Consistent with the criteria used for assessment, this is assessed as having a major positive operational effect.                                                                                                                                                        | N/A                                                                            |
|                            |                                                                                                                                                                                         | Positive    | Small                                                   | High                | Short-term | Temporary  | High                | Medium                          | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | +++                                                                            |
| Soil, geology and land use | 5.1 To contribute to sustainable use of land and protect and enhance the functionality and quality of soils, including the protection of high-grade agricultural land and geodiversity. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>Temporary pumps and discharge infrastructure will need to be constructed in order to transfer water from Llyn Aled Reservoir to Afon Aled as part of the implementation of this drought permit. No excavation will be required as all infrastructure will be above ground, therefore no effects to the soils of the surrounding SSSI are expected during construction. Pumping equipment can also be installed on hard standing areas. As such a neutral effect has been identified for this objective at the construction stage.<br><br><b>Effects of Operation</b><br>No impacts to soils are expected from operation of the pipeline or pumping infrastructure. This option shortens the duration of the effects of a drought by extending normal operations, but it does not improve on baseline conditions. As such, a neutral effect has been identified. | 0                                                                              |
|                            |                                                                                                                                                                                         | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0                                                                              |

| SEA Topics and Objectives |                                                                           |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                |
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| SEA Topic                 | SEA Objective                                                             | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Residual significance of effect (likely to remain after reasonable mitigation) |
| Air and Climate           | 6.1 To reduce and minimise air emissions.                                 | Negative    | Small                                                   | Medium              | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>The implementation of this option will require the movement of plant and materials (for example, pumps and discharge infrastructure) to site, which will require vehicle movements. Although the number is unknown it is anticipated to be minor. This could cause short-term deterioration in local air quality, however, the site is not within an AQMA and there are limited residential receptors in proximity. A minor negative effect has been assessed on a precautionary basis as the number of vehicles and traffic routes to the site are not confirmed.<br><br><b>Effects of Operation</b><br>Operation of the option may require vehicle movements to monitor equipment undertake activities that are in excess of normal operations. The number of vehicle movements is unknown but anticipated to be minor. A minor negative effect is assessed against this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | -/?                                                                            |
|                           |                                                                           | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None.<br><br><b>Assumptions</b><br>None.<br><br><b>Uncertainty</b><br>Number of vehicle movements and routes required is unknown.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | N/A                                                                            |
| Air and Climate           | 6.2 To reduce carbon emissions and to adapt to future changes in climate. | Negative    | Small                                                   | Medium              | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>The implementation of this option will require the movement of plant and materials (for example pumps and discharge infrastructure) to site, which will require fuel and result in carbon emissions. There would also be carbon embodied within the plant and infrastructure. As the equipment is temporary it may be possible to rent (and reuse) equipment to minimise raw materials used in construction. Overall a minor negative effect has been determined against this objective.<br><br><b>Effects of Operation</b><br>Operational energy requirements and associated carbon emissions have not been quantified by DCWW for any options at this stage and therefore a qualitative assessment has been made based on the infrastructure required to implement this option.<br><br>This option will involve utilisation of dead storage in Llyn Aled which will be pumped a short distance to the Afon Aled to enable the continuation of statutory compensation release from Aled Isaf. Water would be treated through existing treatment works and infrastructure. Energy required for treatment and distribution would therefore be unchanged from current operation and no additional emissions of greenhouse gases are anticipated. There will be an increase in operational energy use for pumping water from Llyn Aled to the Afon Aled, however, the pumped distance is anticipated to be small, and therefore a minor negative effect is assessed. | -/?                                                                            |
|                           |                                                                           | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <br>UKCP22 climate change scenarios anticipate longer, hotter summers and, in turn, increases in both the frequency and duration of droughts. This option would provide DCWW with additional capacity to manage drought conditions and as such is considered to contribute towards climate change adaptation. Therefore, a minor positive effect is anticipated.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>The additional energy that will be required for pumping water.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | N/A                                                                            |
| Archaeology and Cultural  | 7.1 To conserve and enhance historic assets/cultural heritage             | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>The closest historic assets are approximately 1.8km from any construction activity and as such no effect on heritage is considered.<br><br><b>Effects of Operation</b><br>The closest historic assets are approximately 1.8km from the reservoirs and as such no effect is considered.<br><br><b>Mitigation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | N/A                                                                            |

| SEA Topics and Objectives    |                                                                                            |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                          |
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| SEA Topic                    | SEA Objective                                                                              | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Residual significance of effect (likely to remain after reasonable mitigation)                                                                                                                                           |
| Cultural Heritage            | and their setting, including archaeological important sites.                               | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | N/A                                                                                                                                                                                                                      |
| Landscape and Visual Amenity | 8.1 To conserve, protect and enhance landscape and townscape character and visual amenity. | Negative    | Small                                                   | Medium              | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>Temporary pumping infrastructure would be constructed next to the Llyn Aled shoreline. Visual disruption through lorry traffic and construction works will occur in a very rural and exposed setting, although it is not designated for landscape quality. It may be possible to mitigate effects by locating temporary infrastructure close to existing features (e.g. walls, buildings, vegetation). The reservoirs are not within an area designated for landscape value, therefore a minor negative effect has been determined against this objective. The effect is uncertain due to the unknown location of intended infrastructure placement.<br><br><b>Effects of Operation</b><br>The operation of this option would maintain levels in Aled Isaf Reservoir but would have negligible drawdown in Llyn Aled Reservoir. The additional pumping infrastructure for this option will also cause some visual intrusion. However, this can be kept minimal if infrastructure is incorporated next to or in existing structures, e.g. on a roadside, and the area is not designated for landscape quality. A minor negative effect has therefore been determined against this objective due to the visual intrusion from above ground infrastructure. | -/?                                                                                                                                                                                                                      |
|                              |                                                                                            | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Mitigation</b><br>Incorporate infrastructure close to existing buildings where possible.<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>The intended location of infrastructure is currently unknown. |



|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                           |               |
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| Option Name:        | 8012-2 Aled Isaf                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Water Resource Zone Name: | Clwyd Coastal |
| Option Description: | <p>The proposed scheme is to reduce the regulation release required from the Aled Isaf Reservoir to conserve the total reservoir storage and prolong its capacity to provide regulation support to the Afon Aled and the abstraction at Bryn Aled.</p> <p>Reduce the required regulation release from Aled Isaf Reservoir by 2 MI/d whenever abstraction is taking place at Bryn Aled intake on the Afon Aled and the residual flow there is less than 29.5 MI/d. The drought permit would be implemented during the period mid-September to mid-January, inclusive.</p> <p>The period mid-October to mid-November is excluded from the assessment, as a potential mitigation measure with respect to migratory fish in the river.</p> |                           |               |

| SEA Topics and Objectives     |                                                                                                                                                                                                                                                                                                       | Assessment of option |                                                         |                     |             |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                |
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| SEA Topic                     | SEA Objective                                                                                                                                                                                                                                                                                         | Effect Type          | Scale of effect – geographical &/or population affected | Certainty of effect | Duration    | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Residual significance of effect (likely to remain after reasonable mitigation) |
| Biodiversity, flora and fauna | 1.1 To protect and enhance designated sites and their qualifying features, biodiversity, priority habitats and species ecological functions, capacity and habitat connectivity and to protect and enhance natural capital and the biodiversity and ecosystem services that contribute to the economy. | Negative             | Small                                                   | High                | Medium-term | Temporary  | Medium              | Medium                          | <p><b>Effects of Construction</b><br/>No construction is required for this option.</p> <p><b>Effects of Operation</b><br/>The zone of influence of the drought permit extends from Aled Isaf Reservoir for 14.7km along the Afon Aled to the confluence with the Afon Elwy. The Afon Aled flows into the Coed Nant-y-Merddyn-Uchaf Site of Special Scientific Interest (SSSI), Mynydd Hiraethog SSSI and Coed Lllys Aled SSSI. The hydrological impact of reducing the required regulation release from Aled Isaf Reservoir has potential to cause moderate reductions of between 10-24% throughout the impacted reaches of the Afon Aled during summer with minor reductions during autumn/winter. The risk to river habitats includes moderate risks of changes in flow hydraulics and in variability of usable habitat in Reach 2 and 3.</p> <p>The impact of the option on the SSSIs has been assessed as neutral as the EAR concluded that:</p> <ul style="list-style-type: none"> <li>Although the Coed Lllys Aled SSSI is adjacent to the Afon Aled the designated features of the site do not rely on specific water levels in the river and there is no hydrological connectivity between the waterbodies and the surrounding SSSI.</li> <li>The woodland habitat present in the Coed Nant-y-Merddyn-Uchaf SSSI is not dependent on the Afon Aled and therefore not susceptible to impacts arising from the implementation of the option.</li> <li>There is no hydrological connectivity between the waterbodies and the Mynydd Hiraethog SSSI, therefore the drought permit would not impact on the designated habitats or upland bird assemblage.</li> </ul> <p>The HRA concluded no qualifying features for sites that were screened are hydrologically dependent or connected to the option, or the sites are sufficiently distanced such that no hydrological impacts will occur. This includes the Liverpool Bae/Bae Lerpwl SPA (located 19km downstream of Aled Isaf) where all features are marine and will not be impacted by the option as hydrological impact ceases prior to Liverpool Bay, as such no significant effects will occur.</p> | --                                                                             |
|                               |                                                                                                                                                                                                                                                                                                       | Positive             | N/A                                                     | N/A                 | N/A         | N/A        | N/A                 | N/A                             | <p>The EAR assessed potential impacts on designated and notable species as well as WFD features. The EAR concluded that implementation of the option will result in moderate impacts to brown/sea trout, brook and river lamprey and sea lamprey in all impacted reaches and minor to moderate impacts on Atlantic salmon. The impacts include delays and potential cessation of adult upstream migration due to reduced flows as well as a reduction in spawning and juvenile survival due to habitat loss. However, as drought permit conditions are to be halted between 16th October and 15th November, and only migration outside this period is likely to be adversely impacted. Minor impacts were assessed for Bullhead, European eel, macrophytes, macroinvertebrates and phytobenthos.</p> <p>As a result, an overall moderate negative effect has been assessed against this objective.</p> <p><b>Mitigation</b><br/>Several mitigation measures have been proposed to reduce the potential impacts on fish species during permit operation. These approaches include actions to deter predators and poaching, temporary reversion to the licensed compensation flow, aeration deployment and fish rescue (catch and transfer to fish refugia). Further information on potential mitigation actions is provided in Appendix C to the Aled Isaf EAR</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | N/A                                                                            |
|                               | 1.2 To avoid and, where required, manage the introduction or spread of                                                                                                                                                                                                                                | Negative             | N/A                                                     | N/A                 | N/A         | N/A        | N/A                 | N/A                             | <p><b>Effects of Construction</b><br/>There are no construction requirements for this option and therefore no effects on the spread of INNS have been considered.</p> <p><b>Effects of Operation</b><br/>No INNS features that are susceptible to drought permit impacts have been identified, and therefore INNS have not been considered further.</p> <p><b>Mitigation</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | N/A                                                                            |

| SEA Topics and Objectives   |                                                                                                                                     |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                |
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| SEA Topic                   | SEA Objective                                                                                                                       | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Residual significance of effect (likely to remain after reasonable mitigation) |
|                             | Introduction or spread of invasive and non-native species (INNS).                                                                   | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | N/A                                                                            |
| Population and human health | 2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing). | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>No construction is required for the implementation of this option and therefore no effects are anticipated on water quality or clean drinking water supply. There would be no direct disturbance to local residents, and therefore a neutral effect is identified.<br><br><b>Effects of Operation</b><br>The operation of this option will conserve 2ML/d deployable output for Clwyd Coastal WRZ. This will help to maintain essential public water supplies during drought conditions, and therefore help maintain public health and well-being. This has been assessed as having a minor positive effect on this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0                                                                              |
|                             |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | +                                                                              |
|                             | 2.2 To protect and enhance the economic and social needs of the local community.                                                    | Negative    | Small                                                   | Low                 | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>No construction is required for the implementation of this option and therefore, there will be no effect on the availability of water for local people and visitors to maintain economic activity in times of drought. Further, it is not anticipated that the option would generate any economic benefits (e.g. job creation or supply chain investment).<br><br><b>Effects of Operation</b><br>This option will conserve 2 ML/d, helping to meet the needs of homes, businesses and visitors to this area. Within the definitions of significance thresholds, this is considered to be a minor positive effect.<br><br>The upper catchment of Afon Aled lies within the Mynydd Hiraethog area and its upland moorland with steep valleys. The open moorlands and lakes are attractive to walking enthusiasts. Land use within the less fertile upper reaches of Afon Aled is predominantly mixed livestock with dairy farming in the lower reaches. Moderate access is provided by footpath and road to the reservoir. Llyn Aled and Aled Isaf reservoirs are popular locations for recreational fishing.                                          | -/?                                                                            |
|                             |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | The impact on river flows in the Afon Aled as assessed in the EAR ranges from minor to moderate in the summer (reduction in flows of between 10% and 24%) and from negligible to minor in the autumn/winter. Impacts to river habitats are assessed as negligible to moderate (reach 2 and 3 only). Changes to water levels and wetted width in the Afon Aled may have direct impacts to fishing and visual amenity value. However, any effect would be short-term and temporary. The hydrological impact on Llyn Aled and Aled Isaf reservoirs has been assessed as minor positive, and as such no impact on recreational fishing in Llyn Aled and Aled Isaf is anticipated. A neutral to minor negative effect (in recognition of the impact on Afon Aled's fishing use and visual amenity value associated with reduced flows and wetted with / depth) has been determined against this objective, but recognises the uncertainty in extent and significance of this.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>Limited data available to assess impacts of reduced flows and wetted width / depth on recreational activities | +                                                                              |

| SEA Topics and Objectives        |                                                                                                                                                              |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                |
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| SEA Topic                        | SEA Objective                                                                                                                                                | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Residual significance of effect (likely to remain after reasonable mitigation) |
| Material assets and resource use | 3.1 To minimise resource use and waste production.                                                                                                           | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>No construction is required for this option and therefore no effect is anticipated.<br><br><b>Effects of Operation</b><br>The option involves modifications to compensation flow only and no changes to energy use, generated waste or sustainable design are envisaged. The option will make use of existing infrastructure resulting in a minor positive effect on this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                         | N/A                                                                            |
|                                  |                                                                                                                                                              | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | +                                                                              |
| Water                            | 4.1 To protect and enhance the quality of surface, groundwater, estuarine and coastal water and help achieve the objectives of the Water Framework Directive | Negative    | Small                                                   | Medium              | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>No construction is required for this option. A neutral effect has therefore been determined.<br><br><b>Effects of Operation</b><br>Afon Aled (waterbodies GB110066054930 Aled - above Deunant and GB110066059770 Aled - Elwy to Deunant) is a heavily modified water body with an ecological status of 'good' (WFD Cycle 3 classification). The proposed reduction in the required regulation release rate from Aled Isaf Reservoir to the Afon Aled has the potential to influence flows and water quality in the Afon Aled and impact on the WFD status of the local waterbodies.                                                                                                                                                                                                                                          | 0/?                                                                            |
|                                  |                                                                                                                                                              | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | The water quality monitoring data available for Reach 1 and 3 suggest reported water quality is consistent with 'High' WFD status for ammonia and dissolved oxygen, with no indication of seasonality. No data were available for Reach 2. One water quality pressure was identified in Reach 1, a storm overflow discharge, however, this was not considered to present an increased risk at times of drought permit operation as there would be no change in the minimum diluting flows. The EAR concluded negligible risks from implementation of the drought permit on water quality.<br><br>Overall, a neutral negative uncertain effect has been determined for this objective.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>No water quality data is available for Reach 2 for the period 2015-2024. | N/A                                                                            |

| SEA Topics and Objectives |                                                                                                                                      |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                |  |
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| SEA Topic                 | SEA Objective                                                                                                                        | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Residual significance of effect (likely to remain after reasonable mitigation) |  |
| Water                     | 4.2 To avoid negative impact on surface and groundwater levels and flows, including when this impacts on habitats and/or navigation. | Negative    | Small                                                   | Medium              | Short-term | Temporary  | Medium              | Medium                          | <b>Effects of Construction</b><br>No construction is required for this option. A neutral effect has therefore been determined.<br><br><b>Effects of Operation</b><br><br>The reduction in regulation release by 2Ml/d will result in moderate reductions of up to 24% (Reach 1) and 18% (Reach 3) and minor reductions of up to 10% (Reach 2) in summer, with negligible to minor reductions in the autumn/winter period (excluding mid-October to mid-November). The resulting impact on river habitats is assessed as moderate (Reach 2 and 3) including for changes in flow hydraulics, connectivity and change in variability of usable habitat.<br><br>The impact on Aled Isaf Reservoir would be a marginal increase in levels / storage, relative to the position without the drought permit, due to the reduced compensation outflow which would help to conserve water in storage. The length of time of shoreline exposure would be slightly shorter, compared to the baseline drought scenario, as the reservoir would reach top water level slightly earlier during the winter refill period. This is been considered to be a minor positive impact. | -/?                                                                            |  |
|                           |                                                                                                                                      | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | A moderate negative effect has been determined against this objective in recognition of the predicted impacts on Afon Aled. The effect is assessed as uncertain due to several assumptions made in the assessment.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>Reduction in year-round median (Q50) flows due to the drought permit is zero, as it is assumed regulation releases would not be required as residual flow at Bryn Aled intake would be well above the required minimum of 29.5Ml/d.<br>Steeper banks assumed in locations where bank composition is observed as bedrock and brick. No river habitat surveys (RHS) available in Reach 3, therefore conditions assumed to be similar to the upstream reaches.<br><br><b>Uncertainty</b><br>Uncertainty assigned due to multiple assumptions made.                                                                                                                                                                                                                                                                                                                                 | +                                                                              |  |
|                           | 4.3 To increase water efficiency and increase resilience of Public Water Supply (PWS) and natural systems to droughts.               | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>No construction is required to implement this option as it makes use of existing infrastructure, therefore no effects in this regard are assessed for this objective.<br><br><b>Effects of Operation</b><br>This option is not a water efficiency measure. However, during operation of this option, a reduction in the required regulation release to the Afon Aled will result in up to 2Ml/d of water resource being conserved for use, helping to maintain public water supplies. Therefore, this option is assessed as having a minor positive operational effect.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | N/A                                                                            |  |
|                           |                                                                                                                                      | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | +                                                                              |  |

| SEA Topics and Objectives  |                                                                                                                                                                                         |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                |
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| SEA Topic                  | SEA Objective                                                                                                                                                                           | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Residual significance of effect (likely to remain after reasonable mitigation) |
| Soil, geology and land use | 5.1 To contribute to sustainable use of land and protect and enhance the functionality and quality of soils, including the protection of high-grade agricultural land and geodiversity. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>The option requires no construction and therefore its implementation is not anticipated to result in any effects on land use or soils.<br><br><b>Effects of Operation</b><br>The Soilscape viewer ( <a href="http://www.landis.org.uk/soilscapes/">http://www.landis.org.uk/soilscapes/</a> ) shows that soils in the valley of the Afon Aled comprise very acid loamy upland soils with a wet peaty surface near the outflow, freely draining acid loamy soils over rock about 0.5 km downstream of the outflow and freely draining slightly acid loamy soils about 6km downstream of the outflow.<br><br>The proposed reduction in the required regulation release rate from Aled Isaf Reservoir to the Afon Aled has the potential to influence flows and wetted width / depth in the Afon Aled. Impact is likely to be more severe in shallower sections of the river channel. Impacts on river habitats are assessed in the EAR as moderate. In the absence of any designated wetland sites or upland soils near Afon Aled (except for localised area upland soils near the outflow) a neutral effect has been determined against this objective. | 0                                                                              |
|                            |                                                                                                                                                                                         | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | N/A                                                                            |
| Air and Climate            | 6.1 To reduce and minimise air emissions.                                                                                                                                               | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>No construction is required to implement this option and therefore there is no pathway to cause an increase or reduce air quality emissions as part of this option.<br><br><b>Effects of Operation</b><br>The drought option involves reducing the compensation flow from the reservoir and therefore no impacts to air quality are anticipated. There are no AQMAs within 500m of Aled Isaf or the Afon Aled. A neutral effect is expected with regards to this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 0                                                                              |
|                            |                                                                                                                                                                                         | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | N/A                                                                            |
| Air and Climate            | 6.2 To reduce carbon emissions and to adapt                                                                                                                                             | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>No construction is required for this option. A neutral effect has therefore been determined.<br><br><b>Effects of Operation</b><br>Operational energy requirements and associated carbon emissions have not been quantified by Welsh Water for any options at this stage and therefore a qualitative assessment has been made based on the infrastructure required to implement this option.<br><br>This option will involve a change to the release rate from the reservoir. Water would be treated through existing treatment works and infrastructure. Energy required for treatment and distribution would therefore be unchanged from current operation and no additional emissions of greenhouse gases are anticipated.<br><br>UKCP22 climate change scenarios anticipate longer, hotter summers and, in turn, increases in both the frequency and duration of droughts. This                                                                                                                                                                                                                                                                    | 0                                                                              |

| SEA Topics and Objectives         |                                                                                                                            |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                |
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| SEA Topic                         | SEA Objective                                                                                                              | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Residual significance of effect (likely to remain after reasonable mitigation) |
| Air and Climate                   | to future changes in climate.                                                                                              | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | Under the climate change scenarios anticipate longer, hotter summers and in turn, increase in both the frequency and duration of droughts. This option would provide Welsh Water with additional capacity to manage drought conditions and as such is considered to contribute towards climate change adaptation. Therefore, a minor positive effect is anticipated.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | +                                                                              |
| Archaeology and Cultural Heritage | 7.1 To conserve and enhance historic assets/cultural heritage and their setting, including archaeological important sites. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>The option will not require construction of new infrastructure and as such, no impacts on this objective during construction are anticipated.<br><br><b>Effects of Operation</b><br>There are a small number of heritage features along Afon Aled. These include Grade II Listed Buildings Church of St Sannan, Lychgate at the Church of St Sannan and road bridges Pont Nant Mostyn and Pont-yr-Aled. The impact on river flows in the Afon Aled is assessed as minor to moderate in the summer, with negligible to minor reductions in autumn/winter. However, there are no water dependent features in the heritage sites closest to Afon Aled and therefore no material impact on heritage features are anticipated. Any affect on setting is considered negligible in the context of the baseline drought conditions during implementation of the option. A neutral effect is therefore anticipated against this objective.                                                                                                                                                                                                                                                                                                  | 0                                                                              |
|                                   |                                                                                                                            | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | N/A                                                                            |
| Landscape and Visual Amenity      | 8.1 To conserve, protect and enhance landscape and townscape character and visual amenity.                                 | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>No construction would be required and therefore no landscape or visual impacts are predicted.<br><br><b>Effects of Operation</b><br>The study area is located in the Conwy Uplands Cultural landscape area and the Mynydd Hiraethog Cultural landscape area. The option does not require new above ground infrastructure. The impact on river flows in the Afon Aled as assessed in the EAR ranges from minor to moderate in the summer and from negligible to minor in the winter. Changes to water levels and wetted width in the Afon Aled may be visible by those living, working or involved in recreational activities but the extent of this is unknown. However, flows during drought conditions will naturally be low therefore the effect is assessed as neutral.<br><br>The hydrological impact on Llyn Aled and Aled Isaf reservoirs has been assessed as minor beneficial. The water level in the reservoir would be maintained over a longer period than without the operation of the option and could have beneficial impacts on the visual amenity. However the reservoir is not located in any area designated for landscape value and due to the short-term nature, this effect is anticipated to be negligible. | 0                                                                              |
|                                   |                                                                                                                            | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0                                                                              |

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                           |               |
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| Option Name:        | 8012-4 Afon Aled                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Water Resource Zone Name: | Clwyd Coastal |
| Option Description: | <p>The proposed drought permit will seek a temporary increase to the annual abstraction licence limits across the three sources in response to higher levels of abstraction necessary to meet higher than usual demand during drought conditions. It will help ensure there is enough resource to maintain essential public water supplies throughout a severe drought without the need for more extreme customer side measures. A drought permit application will seek the following changes to the annual limits of the abstraction licences for the 12-month period 1st April to 31st March in which the drought permit application is made:</p> <p>- 20% increase in the annual abstraction allowed from Plas Uchaf and Dolwen Reservoirs, increasing the annual limit by 1,000 MI, from 5,000 MI/yr to 6,000 MI/yr</p> <p>- 20% increase the annual abstraction allowed at Bryn Aled, increasing the annual limit by 863.6 MI, from 4,318 MI/yr to 5,181.6 MI/yr</p> |                           |               |

| SEA Topics and Objectives     |                                                                                                                                                                                                                                                                                                       | Assessment of option |                                                         |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                |
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| SEA Topic                     | SEA Objective                                                                                                                                                                                                                                                                                         | Effect Type          | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Residual significance of effect (likely to remain after reasonable mitigation) |
| Biodiversity, flora and fauna | 1.1 To protect and enhance designated sites and their qualifying features, biodiversity, priority habitats and species ecological functions, capacity and habitat connectivity and to protect and enhance natural capital and the biodiversity and ecosystem services that contribute to the economy. | Negative             | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Effects of Construction</b><br/>The option would require no additional construction to take place to the existing reservoir and no effects on biodiversity are predicted. In consequence, a neutral effect has been determined against this objective.</p> <p><b>Effects of Operation</b><br/>The operation of this option involves relaxing the annual licence conditions on the Bryn Aled intake and Plas Uchaf and Dolwen Reservoir abstraction. The EAR concluded that hydrological impact in both the reach upstream and downstream of the Bryn Aled intake in the Afon Aled would be negligible during the period of implementation. The reaches downstream of Dolwen and Plas Uchaf Reservoirs would be unaffected. As a result of the negligible hydrological impact associated with the drought option, no designated sites or species were assessed as sensitive enough to impacts from the drought option so as to require further assessment. Implementation of the drought permit would not result in significant effects on any designated features of the Mynydd Hiraethog SSSI or the Coed Nant y Merddyn uchaf SSSI. The reservoirs are not expected to experience significant changes to water level. Conversely, there may be minor positive effects on water levels as the Dolwen and Plas Uchaf Reservoirs could have more water with the drought permit in place compared to normal drought conditions.</p> <p>The HRA concluded no qualifying features for sites that were screened are hydrologically dependent or connected to the option, or the sites are sufficiently distanced such that no hydrological impacts will occur. This includes the Liverpool Bae/Bae Lerpwl SPA (located 19km downstream of Aled Isaf) where all features are marine and will not be impacted by the option as hydrological impact ceases prior to Liverpool Bay, as such, no significant effects will occur.</p> <p>Overall, a neutral negative and minor positive effect is anticipated.</p> | 0                                                                              |
|                               |                                                                                                                                                                                                                                                                                                       | Positive             | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Mitigation</b><br/>There are several mitigation measures that are appropriate, depending on the fish species being protected. The approaches include the temporary reduction or cessation of this option and temporary measures to reduce fish predation.</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>There remains uncertainty with regard to the timing/duration of the option's implementation and the scale/magnitude of effects on species.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | +                                                                              |
|                               | 1.2 To avoid and, where required, manage the introduction or spread of                                                                                                                                                                                                                                | Negative             | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <p><b>Effects of Construction</b><br/>There are no construction requirements for this option therefore no effects on the spread of INNS have been considered.</p> <p><b>Effects of Operation</b><br/>No INNS features that are susceptible to drought permit impacts have been identified, therefore INNS have not been considered further.</p> <p><b>Mitigation</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | N/A                                                                            |



| SEA Topics and Objectives   |                                                                                                                                     | Assessment of option |                                                         |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                |
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| SEA Topic                   | SEA Objective                                                                                                                       | Effect Type          | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Residual significance of effect (likely to remain after reasonable mitigation) |
|                             | Introduction or spread of invasive and non-native species (INNS).                                                                   | Positive             | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <p>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | N/A                                                                            |
| Population and human health | 2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing). | Negative             | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Effects of Construction</b><br/>No construction is required for the implementation of this option and therefore no effects are anticipated on water quality or clean drinking water supply. There would be no direct disturbance to local residents, therefore a neutral effect is identified.</p> <p><b>Effects of Operation</b><br/>The operation of this option will temporarily increase annual abstraction limits across three sources so greater levels of abstraction can be achieved to meet demand in the Clwyd Coastal resource zone, which will help to ensure that water supply is maintained during periods of drought. The amount of additional deployable output may vary but could equate to an additional 4.8Ml/d from Bryn Aled intake and 5.4Ml/d at the Dolwen/Plus Uchaf Reservoirs. Those living, working or visiting the area are unlikely to be directly disturbed by the scheme. Consistent with the definitions of significance, this option has been assessed as a major positive effect.</p>                                                                                                                                                                                                                                                                                                                                                            | 0                                                                              |
|                             |                                                                                                                                     | Positive             | Small                                                   | High                | Short-term | Temporary  | High                | Medium                          | <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | +++                                                                            |
|                             | 2.2 To protect and enhance the economic and social needs of the local community.                                                    | Negative             | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Effects of Construction</b><br/>As there is no construction associated with this option, there will be no effect on the availability of water for people and visitors to maintain economic activity in times of drought. Further, it is not anticipated that the option would generate any economic benefits (e.g. job creation or investment in supply chains).</p> <p><b>Effects of Operation</b><br/>This option will provide additional deployable ouotput that could equate to 4.8Ml/d from Bryn Aled intake and 5.4Ml/d at the Dolwen/Plus Uchaf Reservoirs. This would help to meet the water supply needs of homes, businesses and visitors in the area during periods of drought, supporting the local and regional economy and in accordance with the definitions of significance a minor positive effect is anticipated. Impacts on recreational activities including angling, canoeing, walking resulting from changes in the flow rates of the affected reaches or the water levels within the affected reservoirs are not anticipated over those from the natural drought conditions. Overall, this option has been assessed as having a major positive effect on this objective, due to the amount of additional deployable output coupled with the location in the Clwyd Coastal WRZ which experiences additional seasonal demand due to summer tourist influx.</p> | 0                                                                              |
|                             |                                                                                                                                     | Positive             | Small                                                   | High                | Short-term | Temporary  | High                | Medium                          | <p>Overall, a neutral negative effect and significant positive effect has been assessed against this objective.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | +++                                                                            |

| SEA Topics and Objectives        |                                                                                                                                                              |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                |
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| SEA Topic                        | SEA Objective                                                                                                                                                | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Residual significance of effect (likely to remain after reasonable mitigation) |
| Material assets and resource use | 3.1 To minimise resource use and waste production.                                                                                                           | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>This option will not require the use of raw materials as it will make use of existing infrastructure. A neutral effect has therefore been identified against this objective.<br><br><b>Effects of Operation</b><br>During operation, energy required for treatment and distribution would increase from current operation and additional emissions of greenhouse gases are anticipated. This is anticipated to have a minor negative effect on this objective. The option also makes use of existing abstraction sources and infrastructure, which is assessed as minor positive effect.                                                                                                                                                                                     | -                                                                              |
|                                  |                                                                                                                                                              | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | +                                                                              |
| Water                            | 4.1 To protect and enhance the quality of surface, groundwater, estuarine and coastal water and help achieve the objectives of the Water Framework Directive | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>The option requires no construction and therefore no effects on water quality or on WFD status are expected.<br><br><b>Effects of Operation</b><br>The operation of this option involves relaxing the annual licence conditions on the Bryn Aled intake and Plas Uchaf and Dolwen Reservoir abstraction. The EAR concluded negligible hydrological impact for the Afon Aled, both upstream and downstream of the intake. Therefore no risk to water quality in the reach has been identified. Similarly, the drought permit is not expected to result in significant changes to the water level of the affected reservoirs and as a result, a neutral effect on water quality has been assessed.                                                                             | 0                                                                              |
|                                  |                                                                                                                                                              | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | N/A                                                                            |
|                                  | 4.2 To avoid negative impact on surface and                                                                                                                  | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>No construction is required for this option. A neutral effect has therefore been determined.<br><br><b>Effects of Operation</b><br>The operation of this option involves relaxing the annual licence conditions on the Bryn Aled intake and Plas Uchaf and Dolwen Reservoir abstraction. The EAR concluded that hydrological impact in both the reach upstream and downstream of the Bryn Aled intake in the Afon Aled would be negligible during the period of implementation. The reaches downstream of Dolwen and Plas Uchaf Reservoirs would be unaffected. A neutral effect is assessed in this regard.<br><br>The impact of the option on the reservoirs would be a minor increase in water level, relative to the position without the drought permit. The additional | 0                                                                              |

| SEA Topics and Objectives  |                                                                                                                                                                                         |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                       |
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| SEA Topic                  | SEA Objective                                                                                                                                                                           | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Residual significance of effect <i>(likely to remain after reasonable mitigation)</i> |
| Water                      | groundwater levels and flows, including when this impacts on habitats and/or navigation.                                                                                                | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | volume would enable the continuation of the statutory compensation release and any required regulation release to support downstream abstractions.<br><br>Overall, a minor positive effect is assessed for this objective due to the potential for an increase in levels/storage within the reservoirs during drought.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>That best practice construction techniques are followed.<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                         | +                                                                                     |
|                            | 4.3 To increase water efficiency and increase resilience of Public Water Supply (PWS) and natural systems to droughts.                                                                  | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>No construction is required to implement this option as it makes use of existing infrastructure, therefore no effects in this regard are assessed for this objective.<br><br><b>Effects of Operation</b><br>This option is not a water efficiency measure. However, during operation of this option, an increase in annual abstraction rates could provide additional deployable output that could equate to 4.8M/d from Bryn Aled intake and 5.4M/d at the Dolwen/Plus Uchaf Reservoirs, helping to ensure the maintenance of public water supplies. Therefore, this option is assessed as having a moderate positive effect on the basis of the full deployable output is achieved. | N/A                                                                                   |
|                            |                                                                                                                                                                                         | Positive    | Small                                                   | High                | Short-term | Temporary  | Medium              | Medium                          | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ++                                                                                    |
| Soil, geology and land use | 5.1 To contribute to sustainable use of land and protect and enhance the functionality and quality of soils, including the protection of high-grade agricultural land and geodiversity. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>The option requires no construction and therefore its implementation is not anticipated to result in any effects on land use or soils.<br><br><b>Effects of Operation</b><br>The operation of this option would maintain flows downstream of the affected reservoirs and the EAR concluded negligible hydrological impacts in the Afon Aled, both upstream and downstream of the intake. Consequently, no effect is anticipated. The EAR concluded negligible hydrological impacts downstream of the Bryn Aled intake. There are no designated wetland sites or upland soils near the river or reservoirs and consequently a neutral effect has been identified.                      | 0                                                                                     |
|                            |                                                                                                                                                                                         | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | N/A                                                                                   |

| SEA Topics and Objectives |                                                                           |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                |
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| SEA Topic                 | SEA Objective                                                             | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Residual significance of effect (likely to remain after reasonable mitigation) |
| Air and Climate           | 6.1 To reduce and minimise air emissions.                                 | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>No construction is required to implement this option and so there is no pathway to cause an increase or reduce air quality emissions as part of this option.<br><br><b>Effects of Operation</b><br>The drought option involves increasing annual licence conditions only and therefore no impacts to air quality are anticipated. There are no AQMAS within 500m of Aled Isaf, Afon Aled or Plas Uchaf or Dolwen Reservoirs. A neutral effect is expected with regard to this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0                                                                              |
|                           |                                                                           | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | N/A                                                                            |
| Air and Climate           | 6.2 To reduce carbon emissions and to adapt to future changes in climate. | Negative    | Small                                                   | Low                 | Short-term | Temporary  | Medium              | Medium                          | <b>Effects of Construction</b><br>The implementation of this option will not require any construction, therefore a neutral effect has been determined against this objective.<br><br><b>Effects of Operation</b><br>This option will involve a change to the release rate from the reservoirs, which is assumed to be by gravity and penstock arrangement. Water would be treated through existing treatment works and infrastructure. Energy required for treatment and distribution would therefore be unchanged from current operation and no additional emissions of greenhouse gases are anticipated.<br><br>This option will involve a temporary increase to the annual abstraction licence limits across three sources in response to higher levels of abstraction necessary to meet higher than usual demand during drought conditions. Water would be treated through existing treatment works and infrastructure. Energy required for treatment and distribution would therefore be slightly increased from current operation and additional emissions of greenhouse gases are anticipated. The amount is unknown but anticipated to be a moderate amount. | -1?                                                                            |
|                           |                                                                           | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>Unknown additional energy requirements during operation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | +                                                                              |

| SEA Topics and Objectives         |                                                                                                                            |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                |  |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------|---------------------------------------------------------|---------------------|------------|------------|---------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|--|
| SEA Topic                         | SEA Objective                                                                                                              | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Residual significance of effect (likely to remain after reasonable mitigation) |  |
| Archaeology and Cultural Heritage | 7.1 To conserve and enhance historic assets/cultural heritage and their setting, including archaeological important sites. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>The option will not require construction of new infrastructure and as such, during construction no effects are anticipated on this objective.<br><br><b>Effects of Operation</b><br>There are a small number of heritage features along Afon Aled. These include Grade II Listed Buildings Church of St Sannan, Lychgate at the Church of St Sannan and road bridges Pont Nant Mostyn and Pont-yr-Aled. The impact on river flows in the Afon Aled is assessed as negligible and there are no water dependent features in the heritage sites closest to Afon Aled and therefore no effect on heritage features is anticipated. A neutral effect is therefore anticipated against this objective.                                                                                                                                                                                                                                                                                                                                                    | 0                                                                              |  |
|                                   |                                                                                                                            | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | N/A                                                                            |  |
| Landscape and Visual Amenity      | 8.1 To conserve, protect and enhance landscape and townscape character and visual amenity.                                 | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>No construction would be required and therefore no landscape or visual impacts are predicted.<br><br><b>Effects of Operation</b><br>The impact on river flows in the Afon Aled as assessed in the EAR is assessed as negligible. Any changes to water levels and wetted width in the Afon Aled may be visible by those living, working or involved in recreational activities but the extent of this is unknown. However, flows during drought conditions will naturally be low and therefore the effect is assessed as neutral.<br><br>The hydrological impact on the affected reservoirs has been assessed as minor positive. The water level in the reservoirs would be maintained over a longer period than without the operation of the option and could have positive effects on landscape and visual amenity. However the reservoirs are not located in an area designated for landscape value and due to the short-term nature, this effect is anticipated to be negligible. Overall, a neutral effect has been identified for this option. | 0                                                                              |  |
|                                   |                                                                                                                            | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0                                                                              |  |

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                           |               |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------|
| Option Name:        | 8012-6 Aled Isaf to Llyn Aled                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Water Resource Zone Name: | Clwyd Coastal |
| Option Description: | <p>The proposed scheme is to allow water to be transferred from Aled Isaf Reservoir to Llyn Aled Reservoir at a rate of up to 19.5ML/d, via temporary pipeline and pumps.</p> <p>The permit, if required, is expected to be required over the period mid November to March, inclusive. It should be noted that this drought permit overlaps with the Llyn Aled dead storage utilisation option 8012-1 for two weeks between mid-November and the beginning of December. Therefore, depending on the storage situation of both reservoirs in November, an assessment of which drought option is best to use should be made. Both drought options are exclusive and should not run concurrently.</p> <p>The scheme will require the construction of temporary abstraction arrangement in Aled Isaf Reservoir, a pipeline to Llyn Aled Reservoir, pumping arrangement, and a discharge arrangement in Llyn Aled Reservoir. These works will be designed in advance of the need for the permit and further environmental assessment for the construction, operation and decommissioning of the pumps and pipeline will be completed at the time of application for a drought permit. These works are not considered in the EAR for this option but have been considered at high level in the SEA.</p> |                           |               |

| SEA Topics and Objectives     |                                                                                                                                                                                                                                                                                                       | Assessment of option |                                                         |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                |
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| SEA Topic                     | SEA Objective                                                                                                                                                                                                                                                                                         | Effect Type          | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Residual significance of effect (likely to remain after reasonable mitigation) |
| Biodiversity, flora and fauna | 1.1 To protect and enhance designated sites and their qualifying features, biodiversity, priority habitats and species ecological functions, capacity and habitat connectivity and to protect and enhance natural capital and the biodiversity and ecosystem services that contribute to the economy. | Negative             | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <p><b>Effects of Construction</b><br/>Aled Isaf, where pumping infrastructure would be required near the shoreline, is not itself a designated site. Surrounding its shoreline and extending to the shoreline of Llyn Aled to the south is the Mynydd Hiraethog SSSI. The SSSI is designated for heathland and blanket mire habitats and associated bird, lichen and insect species. The SSSI is not designated for water flow or other aquatic reasons. Construction effects can be minimised by routing the pipeline along an access road which travels directly between the two reservoirs, which are 1km apart. It is also assumed that pumping infrastructure could also be sited on hardstanding areas next to the access road on Aled Isaf, and existing outflow structures could be utilised on Llyn Aled.</p> <p>It is considered that effects on the surrounding SSSI can be mitigated by routing the pipeline along the roadway and with the use of best practice construction techniques. However, the immediate proximity of any infrastructure to the sensitive features of the Mynydd Hiraethog SSSI means that the potential for a negative effect cannot be ruled out and consequently a minor negative effect is identified.</p> <p><b>Effects of Operation</b><br/>The EAR concluded negligible hydrological impacts during the winter months of mid-November to March when the drought permit is in place. As the drought permit only applies during the winter months of mid-November to March, there is not expected to be any hydrological impact on the downstream Afon Aled during the summer period of April to September. As a result, no designated sites or species were assessed as sensitive to impacts from the drought option and were not considered further in the assessment. The HRA concluded no qualifying features for sites that were screened are hydrologically dependent or connected to the option, or the sites are sufficiently distanced such that no hydrological impacts will occur. This includes the Liverpool Bae/Bae Lerpwl SPA (located 19km downstream of Aled Isaf) where all features are marine and will not be impacted by the option, as such there is no likelihood for significant effects. Due to the lack of hydrological impact identified, a neutral effect has been assessed on this objective during operation.</p> <p><b>Mitigation</b><br/>Best practice construction techniques are followed to minimise impacts on ecological habitats and water quality.</p> <p><b>Assumptions</b><br/>It is assumed that temporary pumping/generators and associated pipework would be located away from sensitive receptors including following the local access road and on hardstanding ground where required. It is assumed that best practice construction techniques will be followed to minimise effects on ecological habitats and water quality.</p> <p><b>Uncertainty</b><br/>None.</p> |                                                                                |
|                               |                                                                                                                                                                                                                                                                                                       | Positive             | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | N/A                                                                            |
|                               | 1.2 To avoid and, where required, manage the introduction or spread of                                                                                                                                                                                                                                | Negative             | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Effects of Construction</b><br/>There are minor construction requirements associated with this option (e.g. pipeline and pumping infrastructure). It is assumed that biosecurity measures will be adhered to throughout any required works and these will be sufficient to avoid any negative effects, therefore, a neutral effect is assessed.</p> <p><b>Effects of Operation</b><br/>The EAR concluded a negligible hydrological impact, therefore, no effects on INNS are anticipated.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0                                                                              |

| SEA Topics and Objectives   |                                                                                                                                     |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------------------------------------------------|---------------------|------------|------------|---------------------|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| SEA Topic                   | SEA Objective                                                                                                                       | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Residual significance of effect (likely to remain after reasonable mitigation) |
|                             | Introduction or spread of invasive and non-native species (INNS).                                                                   | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>Standard biosecurity measures will be adopted for all construction works.<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | N/A                                                                            |
| Population and human health | 2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing). | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>The siting of mobile pumps, diesel generator and abstraction and transfer pipes would have no effect on continuity of clean drinking water supply at time of drought, nor would it affect surface water quality (assuming use of best practice construction techniques are applied). Noise and vibration may result from pumps, pipeline and generators. However, it is noted that the site is in an extremely rural location with no residential properties in the immediate vicinity of the site, or directly on roads that would be used for access. Overall, a neutral effect has been identified for this objective during construction.                                                                                                                                                                                                                                                              | 0                                                                              |
|                             |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Operation</b><br>This option is to improve winter refill in Llyn Aled Reservoir to ensure recovery prior to the next draw-down season and will not provide any additional deployable output to support human health and wellbeing. There is the potential for noise disturbance through the operation of generators. However, the extremely rural location of the site, with no residential properties in the immediate vicinity, such effects are considered to be negligible. Overall, a neutral effect has been identified for this objective.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>Best practice construction techniques applied.<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                               | 0                                                                              |
|                             | 2.2 To protect and enhance the economic and social needs of the local community.                                                    | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>The construction phase of this option will have no effect on the availability of water for people and visitors to maintain economic activity in times of drought. No conceivable effects on the local or regional economy are anticipated as a result of the construction of this option. This option would be located in an area that provides opportunities for outdoor recreation activities, for example, fishing at Llyn Aled and Aled Isaf. Although there may be local disruption to footpaths and access from the siting of infrastructure, footpath/road diversions will be possible. Overall, a neutral effect has been identified for this objective.<br><br><b>Effects of Operation</b><br>This option will provide no additional yield, nor does it improve the water levels beyond baseline conditions. Therefore this option is considered to have a neutral effect on the local community. | 0                                                                              |
|                             |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0                                                                              |



| SEA Topics and Objectives                                                                                                                                                                                                                                                                                        |                                                                                                                                                              |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| SEA Topic                                                                                                                                                                                                                                                                                                        | SEA Objective                                                                                                                                                | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Residual significance of effect (likely to remain after reasonable mitigation)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Material assets and resource use                                                                                                                                                                                                                                                                                 | 3.1 To minimise resource use and waste production.                                                                                                           | Negative    | Small                                                   | Medium              | Short-term | Permanent  | High                | Medium                          | <b>Effects of Construction</b><br>This option will require the movement of plant and materials (e.g. pumps, pipes etc) to site, which will consume fuel. There would also be materials within the new infrastructure (plastics and metals). In accordance with the definitions of significance, this has been assessed as a minor negative effect against this objective. However, there is the potential to mitigate such effects through the rental and reuse of the equipment used on site.<br><br><b>Effects of Operation</b><br>The anticipated energy required to pump the required volume of water against the gradient for approximately 1km will be considerable, with the associated use of non-renewable fossil fuels from the pump generators giving rise to a significant negative effect.                                                                                                                                                                                                                                                                                                                                                                                         | ---/?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                              | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>The rental or re-use of onsite equipment.<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>The total amount of water that will be pumped.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Effects of Construction<br>Aled Isaf, where pumping infrastructure would be required near the shoreline, is not itself a designated site. Surrounding its shoreline and extending to the shoreline of Llyn Aled to the south is the Mynydd Hiraethog SSSI. The SSSI is designated for heathland and blanket mire | 4.1 To protect and enhance the quality of surface, groundwater, estuarine and coastal water and help achieve the objectives of the Water Framework Directive | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>Temporary pumps and pipelines will need to be constructed in order to transfer water from the Aled Isaf Reservoir to the Llyn Aled Reservoir as part of the implementation of this drought permit. Construction is not anticipated to lead to a change in river flows, surface water or groundwater quantity. No effects on water quality would be expected from construction activities, assuming that best practice construction techniques are followed (e.g. the use of sediment traps). No effects on WFD status are expected to result from construction. Therefore, a neutral effect has been identified.<br><br><b>Effects of Operation</b><br>The EAR concluded negligible hydrological impacts for Aled Isaf Reservoir and Afon Aled during the winter months of mid-November to March when the drought permit is in place. As the drought permit only applies during the winter months of mid-November to March, there is not expected to be any hydrological impact on the downstream Afon Aled during the summer period of April to September. As a result, impacts on water quality are considered negligible and a neutral effect is assessed. | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                              | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>That best practice construction techniques are followed.<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                              |             | Negative                                                | Small               | High       | Short-term | Temporary           | Low                             | Medium                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>Effects of Construction</b><br>Temporary pumps and pipelines will need to be constructed in order to transfer water from the Aled Isaf Reservoir to the Llyn Aled Reservoir as part of the implementation of this drought permit. Construction is not anticipated to lead to a change in river flows. No effects on WFD status are expected to result from construction. Therefore, a neutral effect has been identified.<br><br><b>Effects of Operation</b><br>The EAR concluded negligible hydrological impacts for Aled Isaf Reservoir and Afon Aled during the winter months of mid-November to March when the drought permit is in place. As the drought permit only applies during the winter months of mid-November to March, there is not expected to be any hydrological impact on the downstream Afon Aled during the summer period of April to September. |

| SEA Topics and Objectives |                                                                                                                                      |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                |
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| SEA Topic                 | SEA Objective                                                                                                                        | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Residual significance of effect (likely to remain after reasonable mitigation) |
| Water                     | 4.2 To avoid negative impact on surface and groundwater levels and flows, including when this impacts on habitats and/or navigation. | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <p>The impact on Llyn Aled Reservoir would be a marginal increase in levels / storage, relative to the position without the drought permit, due to the pumped refill from Aled Isaf Reservoir which allows Llyn Aled to reach top water level earlier than in the baseline scenario. The length of time of shoreline exposure would be shorter, compared to the baseline drought scenario. This would be considered as a minor positive impact, during the winter months of mid-November to March when the drought permit is in place.</p> <p>Overall, a minor positive effect is assessed for this objective due to the potential for an increase in levels/storage in Llyn Aled Reservoir.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>That best practice construction techniques are followed.</p> <p><b>Uncertainty</b><br/>None</p>           | +                                                                              |
|                           | 4.3 To increase water efficiency and increase resilience of Public Water Supply (PWS) and natural systems to droughts.               | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <p><b>Effects of Construction</b><br/>The construction associated with this option will have no effect on water efficiency or resilience to drought.</p> <p><b>Effects of Operation</b><br/>This option is to improve winter refill in Llyn Aled Reservoir to ensure recovery prior to the next draw-down season. Although it will not provide any additional deployable output, it will aid in increasing resilience to drought in the Welsh Water supply area. Overall, a minor positive effect has been identified for this objective.</p>                                                                                                                                                                                                                                                                                                                          | N/A                                                                            |
|                           |                                                                                                                                      | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | +                                                                              |
| Soil, geology             | 5.1 To contribute to sustainable use of land and protect and enhance the functionality and quality                                   | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Effects of Construction</b><br/>Temporary pumps and pipelines will need to be constructed in order to transfer water from the Aled Isaf Reservoir to the Llyn Aled Reservoir as part of the implementation of this drought permit. As the pipeline is above ground, and no excavation required, no effects to the soils of the surrounding SSSI are expected during construction. Pumping equipment can also be installed on hard standing areas. As such a neutral effect has been identified for this objective during construction.</p> <p><b>Effects of Operation</b><br/>No effects on soils are expected from operation of the pipeline or pumping infrastructure. This option shortens the duration of the effects of a drought by speeding up refill, but it does not improve on baseline conditions. As such, a neutral effect has been identified.</p> | 0                                                                              |

| SEA Topics and Objectives |                                                                                                                |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                |
|---------------------------|----------------------------------------------------------------------------------------------------------------|-------------|---------------------------------------------------------|---------------------|------------|------------|---------------------|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| SEA Topic                 | SEA Objective                                                                                                  | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Residual significance of effect (likely to remain after reasonable mitigation) |
| and land use              | functionality and quality of soils, including the protection of high-grade agricultural land and geodiversity. | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | Mitigation<br>None<br><br>Assumptions<br>None<br><br>Uncertainty<br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0                                                                              |
| Air and Climate           | 6.1 To reduce and minimise air emissions.                                                                      | Negative    | Small                                                   | Medium              | Short-term | Temporary  | Low                 | Low                             | Effects of Construction<br>The implementation of this option will require the movement of plant and materials (for example pumps and approximately 1km of pipeline) to site, which will require vehicle movements, although the number is unknown but anticipated to be minor. This could cause short-term deterioration in local air quality, however, the site is not within an AQMA and there are limited residential receptors in proximity. A minor negative effect has therefore been assessed.<br><br>Effects of Operation<br>Operation of the option may require vehicle movements to monitor equipment and undertake activities that are in excess of normal operations. The number of vehicle movements is unknown but anticipated to be minor.<br><br>Overall a minor negative uncertain effect is therefore assessed for this objective.                                                                                                                                                                                                                                             | -/?                                                                            |
|                           |                                                                                                                | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | Mitigation<br>None.<br><br>Assumptions<br>None.<br><br>Uncertainty<br>Number of vehicle movements that would be required is unknown.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | N/A                                                                            |
| Air and Climate           | 6.2 To reduce carbon emissions and to adapt to future changes in climate.                                      | Negative    | Small                                                   | Medium              | Short-term | Temporary  | High                | Medium                          | Effects of Construction<br>The implementation of this option will require the movement of plant and materials (for example, pumps and approximately 1km of pipeline) to site, which will require fuel and result in carbon emissions. There would also be carbon embodied within the plant and infrastructure. As the equipment is temporary it may be possible to rent (and reuse) equipment to cut down raw materials used in construction. Overall a minor negative effect has been determined against this objective.<br><br>Effects of Operation<br>Energy requirements and associated greenhouse gas emissions have not been quantified by Welsh Water for any options at this stage and therefore a qualitative assessment has been made based on the infrastructure required to implement this option. Nonetheless, it is anticipated that the energy required to pump the required volume of water against the gradient for approximately 1km will be considerable, with the associated greenhouse gas emissions from the pump generators giving rise to a significant negative effect. | ---/?                                                                          |
|                           |                                                                                                                | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | Mitigation<br>None<br><br>Assumptions<br>None<br><br>Uncertainty<br>The total amount of water that will be pumped.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | N/A                                                                            |

| SEA Topics and Objectives         |                                                                                                                            |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                |
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| SEA Topic                         | SEA Objective                                                                                                              | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Residual significance of effect (likely to remain after reasonable mitigation) |
| Archaeology and Cultural Heritage | 7.1 To conserve and enhance historic assets/cultural heritage and their setting, including archaeological important sites. | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>The closest historic assets are approximately 1.8km from any construction activity and as such no effect on heritage are considered.<br><br><b>Effects of Operation</b><br>The closest historic assets are approximately 1.8km from the reservoirs and as such no effect is considered.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | N/A                                                                            |
|                                   |                                                                                                                            | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | N/A                                                                            |
| Landscape and Visual Amenity      | 8.1 To conserve, protect and enhance landscape and townscape character and visual amenity.                                 | Negative    | Small                                                   | Medium              | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>Temporary pumping infrastructure would be constructed next to the Aled Isaf shoreline. Visual disruption through lorry traffic and construction works will occur in a very rural and exposed setting, although it is not designated for landscape quality. It may be possible to mitigate impacts by locating temporary infrastructure close to existing features (e.g. walls, buildings, vegetation). The reservoirs are not within an area designated for landscape value, therefore a minor negative effect has been determined against this objective. The effect is uncertain due to potential pipeline routing.<br><br><b>Effects of Operation</b><br>The operation of this option would not improve the visual drawdown above that of baseline conditions. The additional pumping infrastructure and pipeline required for this option will also cause some visual intrusion. However, this can be kept minimal if infrastructure is incorporated next to or in existing structures, e.g. on a roadside, and the area is not designated for landscape quality. A minor negative effect has been determined against this objective due to the visual above ground infrastructure. | -/?                                                                            |
|                                   |                                                                                                                            | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | N/A                                                                            |

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                           |                          |
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| Option Name:        | 8033-34-1 Llyn Cwmystradllyn                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Water Resource Zone Name: | Barmouth / Lleyn Harlech |
| Option Description: | <p>The compensation flow release of 3.01 MI/d from Llyn Cwmystradllyn helps to sustain flow in the downstream Afon Henwy and Afon Dwyfor all year round. Additionally, regulation releases are made concurrently when abstraction at the Garndolbenmaen river intake is taking place and river flows are below the hands-off flow requirement, together with any fisheries releases required. These controlled releases from Llyn Cwmystradllyn represent a significant proportion of the flow in the downstream river system during drought and periods without significant rainfall across the catchment.</p> <p>The proposed drought permit is to reduce the compensation flow normally required from the reservoir by 20% (0.6MI/d) in order to conserve reservoir storage and help ensure there is enough resource to maintain essential public water supplies throughout a severe drought without the need for more extreme customer side measures. This will reduce the licensed requirement of not less than 3.01 MI/d, to not less than 2.41 MI/d. The scheme will also help improve the prospect of reservoir recovery over the winter.</p> |                           |                          |

| SEA Topics and Objectives     |                                                                                                                                                                                                                                                                                                       |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |
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| SEA Topic                     | SEA Objective                                                                                                                                                                                                                                                                                         | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Residual significance of effect (likely to remain after reasonable mitigation)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |     |
| Biodiversity, flora and fauna | 1.1 To protect and enhance designated sites and their qualifying features, biodiversity, priority habitats and species ecological functions, capacity and habitat connectivity and to protect and enhance natural capital and the biodiversity and ecosystem services that contribute to the economy. | Negative    | Small                                                   | Medium              | Short-term | Temporary  | Medium              | Medium                          | <b>Effects of Construction</b><br>No additional construction is requirement for the implementation of the option, no effects from construction would occur.<br><br><b>Effects of Operation</b><br>The hydrological impacts are associated with a moderate reduction of up to 20% in flows in the Afon Henwy (downstream of the reservoir) at any time of year the drought option is implemented. The EAR concluded minor risks to river habitats, in particular to changes in flow hydraulics, connectivity and change in variability in usable habitat. The impacts are limited to one reach only on the Afon Henwy, from Llyn Cwmystradllyn outflow to the confluence with Afon Ddu.<br>No statutory designated sites have been identified in the vicinity of the impacted reach, therefore no effects have been considered.<br><br>The EAR for this option identified potential impacts on aquatic ecology, including moderate impacts on notable species of macrophyte and bryophyte. The EAR concluded moderate impacts to <i>Ranunculus</i> communities due to the moderate impacts on water levels and flows and resulting changes to community composition and habitat loss due to changes in flow rates and wetted width. Minor impacts are identified for bryophytes (e.g. <i>Porella pinnata</i> ) due to changes in inundation pattern and splash as a result of reduced flows. Moderate impacts on Atlantic salmon and Brown/sea trout have been assessed, associated with the effects of reduced flows on upstream migration and reduction or loss of spawning and juvenile habitat. Minor impacts on European eel migration were also assessed. Effects would be short-term and temporary for the duration of the drought option.<br><br>Overall, this option has been assessed as having a moderate (uncertain) effect on biodiversity in operation. | --/?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |     |
|                               |                                                                                                                                                                                                                                                                                                       | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Mitigation</b><br>Several mitigation measures have been proposed to reduce the potential impacts on fish species during permit operation. These approaches include actions to deter predators and poaching, temporary reversion to the licensed compensation flow, aeration deployment and fish rescue (catch and transfer to fish refugia). Further information on potential mitigation actions is provided in Appendix C to the Llyn Cwmystradllyn EAR.<br><br><b>Assumptions</b><br>None.<br><br><b>Uncertainty</b><br>There was medium confidence in the assessment of fisheries impacts due to the number of surveys and age of the most recent surveys completed. | N/A |
|                               | 1.2 To avoid and, where required, manage the introduction or spread of invasive and non-native species (INNS).                                                                                                                                                                                        | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Effects of Construction</b><br>There are no construction requirements for this option therefore no effects on the spread of INNS have been considered.<br><br><b>Effects of Operation</b><br>No INNS features that are susceptible to drought permit impacts have been identified, therefore INNS have not been considered further.<br><br><b>Mitigation</b><br>None                                                                                                                                                                                                                                                                                                    | N/A |
|                               |                                                                                                                                                                                                                                                                                                       | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | N/A |

| SEA Topics and Objectives        |                                                                                                                                     |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                |
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| SEA Topic                        | SEA Objective                                                                                                                       | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Residual significance of effect (likely to remain after reasonable mitigation) |
| Population and human health      | 2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing). | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>No construction is required for the implementation of this option and therefore no effects are anticipated on water quality or clean drinking water supply. There would be no direct disturbance to local residents, therefore a neutral effect is identified.                                                                                                                                                                                                                                              | 0                                                                              |
|                                  |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Operation</b><br>The operation of this option will conserve 0.6MI/d deployable output for Barmouth/Lleyn Harlech WRZ. This will help to maintain essential public water supplies during drought conditions, and therefore help maintain public health and well-being. This has been assessed as having a minor positive effect on this objective.                                                                                                                                                                               | +                                                                              |
|                                  | 2.2 To protect and enhance the economic and social needs of the local community.                                                    | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>No construction is required for the implementation of this option therefore there will be no effect on the availability of water for local people and visitors to maintain economic activity in times of drought. Further, it is not anticipated that the option would generate any economic benefits (e.g. job creation or supply chain investment).                                                                                                                                                       | N/A                                                                            |
|                                  |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Operation</b><br>This option will conserve 0.6 MI/d, helping to meet the needs of homes, businesses and visitors to this area. Within the definitions of significance thresholds, this is considered to be a minor positive effect.                                                                                                                                                                                                                                                                                             |                                                                                |
|                                  |                                                                                                                                     |             |                                                         |                     |            |            |                     |                                 | Recreational activities in the area include walking, climbing, angling and fishing. The EAR identifies that any reduction in wetted width and depth may influence water-dependent activities such as angling. However, water levels will already be naturally low in times of drought and will already have curtailed these recreational activities prior to the drought order implementation. Any impacts will be temporary in nature and will be ameliorated once the drought has passed. As such, a negligible effect has been identified. |                                                                                |
|                                  |                                                                                                                                     |             |                                                         |                     |            |            |                     |                                 | <b>Mitigation</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                |
| Material assets and resource use | 3.1 To minimise resource use and waste production.                                                                                  |             |                                                         |                     |            |            |                     |                                 | <b>Assumptions</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | +                                                                              |
|                                  |                                                                                                                                     |             |                                                         |                     |            |            |                     |                                 | <b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                |
|                                  |                                                                                                                                     |             |                                                         |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                |
|                                  |                                                                                                                                     |             |                                                         |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                |

| SEA Topics and Objectives |                                                                                                                                                              |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                |  |
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| SEA Topic                 | SEA Objective                                                                                                                                                | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Residual significance of effect (likely to remain after reasonable mitigation) |  |
| Water                     | 4.1 To protect and enhance the quality of surface, groundwater, estuarine and coastal water and help achieve the objectives of the Water Framework Directive | Negative    | Small                                                   | Low                 | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>There is no construction associated with this option, therefore, no resulting effects on water quality or WFD status are anticipated.<br><br><b>Effects of Operation</b><br>This option would potentially result in a moderate reduction of flows in Afon Henwy downstream of Llyn Cwmystadrlllyn (up to 20% in Reach 1 at any time of year the drought permit is implemented). The ecological quality (WFD Cycle 3) of the Llyn Cwmystadrlllyn Reservoir is 'Moderate' and the Afon Ysgethin is 'Moderate'. Reduction of compensation flow has the potential to impact on water quality in the river and could cause some deterioration of the ecological quality. No water quality pressures were identified in the impacted reach. The EAR concluded negligible risks to water quality, with remaining uncertainty due to data gaps.                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0/?                                                                            |  |
|                           |                                                                                                                                                              | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>No water quality data is available in the impacted reach for the period 2015-2024.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | N/A                                                                            |  |
| Water                     | 4.2 To avoid negative impact on surface and groundwater levels and flows, including when this impacts on habitats and/or navigation.                         | Negative    | Small                                                   | Medium              | Short-term | Temporary  | Medium              | Medium                          | <b>Effects of Construction</b><br>No construction is required to implement this option as it makes use of existing infrastructure, therefore no effects in this regard are assessed for this objective.<br><br><b>Effects of Operation</b><br>The reduction in compensation flow from 3.01M/d to 2.41M/d from Llyn Cwmystadrlllyn represents a 20% reduction in both summer and year round flows in the Afon Henwy immediately below the reservoir (Reach 1). The hydrological impact of the drought permit in Reach 1 is therefore assessed as moderate for both the summer drawdown period (June - September) and the autumn/winter refill period (October - December). The resulting impact on river habitats is assessed as minor, including for changes in flow hydraulics, connectivity and change in variability of usable habitat.<br><br>The impact on Llyn Cwmystadrlllyn would be a marginal increase in levels / storage, relative to the position without the drought permit, due to the reduced compensation outflow which would help to conserve water in storage. The length of time of shoreline exposure would be slightly shorter, compared to the baseline drought scenario, as the reservoir would reach top water level slightly earlier during the winter refill period. This would be considered as a minor positive impact . | --/?                                                                           |  |
|                           |                                                                                                                                                              | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Mitigation</b><br>None.<br><br><b>Assumptions</b><br>The reduction in compensation release has been assessed relative to the outflow without regulation releases (which modelled outflow data suggests occurs on occasion).<br><br><b>Uncertainty</b><br>None.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | +                                                                              |  |
|                           | 4.3 To increase water efficiency and increase resilience of Public                                                                                           | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>No construction is required to implement this option as it makes use of existing infrastructure, therefore no effects in this regard are assessed for this objective.<br><br><b>Effects of Operation</b><br>This option is not a water efficiency measure. However, during operation of this option, a reduction in compensation flow to the Afon Ysgethin will result in up to 0.6M/d of water resource being conserved for use, helping to ensure the maintenance of public water supplies. Therefore, this option is assessed as having a minor positive operational effect.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | N/A                                                                            |  |



| SEA Topics and Objectives  |                                                                                                                                                                                         |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                       |
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| SEA Topic                  | SEA Objective                                                                                                                                                                           | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Residual significance of effect <i>(likely to remain after reasonable mitigation)</i> |
|                            | Water Supply (PWS) and natural systems to droughts.                                                                                                                                     | Positive    | Medium                                                  | High                | Short-term | Temporary  | Low                 | Medium                          | Mitigation<br>None<br><br>Assumptions<br>None<br><br>Uncertainty<br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | +                                                                                     |
| Soil, geology and land use | 5.1 To contribute to sustainable use of land and protect and enhance the functionality and quality of soils, including the protection of high-grade agricultural land and geodiversity. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | Effects of Construction<br>The option requires no construction and therefore its implementation is not anticipated to result in any effects on land use or soils.<br><br>Effects of Operation<br>This option would result in reduced water levels in Afon Henwy. Conceivably, this could lead to drying out of soils adjacent to the river (which could already be affected during an extended period of low rainfall). The EAR concluded negligible risks to changes in sediment dynamics or channel morphology. In the absence of any designated wetland sites or upland soils near the river a neutral effect has been determined.                                                                                                                                                                                                                                                                                          | 0                                                                                     |
|                            |                                                                                                                                                                                         | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | Mitigation<br>None<br><br>Assumptions<br>None<br><br>Uncertainty<br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | N/A                                                                                   |
| Air and Climate            | 6.1 To reduce and minimise air emissions.                                                                                                                                               | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | Effects of Construction<br>No construction is required to implement this option and so there is no pathway to cause an increase or reduce air quality emissions as part of this option.<br><br>Effects of Operation<br>The drought option involves reducing the compensation flow from the reservoir and therefore no impacts to air quality are anticipated. There are no AQMAs within 500m of Llyn Cwmystadrlyn nor the impacted reaches. A neutral effect is expected with regard to this objective.                                                                                                                                                                                                                                                                                                                                                                                                                        | 0                                                                                     |
|                            |                                                                                                                                                                                         | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | Mitigation<br>None<br><br>Assumptions<br>None<br><br>Uncertainty<br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | N/A                                                                                   |
| Air and Climate            | 6.2 To reduce carbon emissions and to adapt                                                                                                                                             | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | Effects of Construction<br>No construction is required to implement this option, therefore a neutral effect has been assessed against this objective.<br><br>Effects of Operation<br>Operational energy requirements and associated carbon emissions have not been quantified by DCWW for any options at this stage and therefore a qualitative assessment has been made based on the infrastructure required to implement this option.<br><br>This option will involve a change to the release rate from the reservoir. Water would be treated through existing treatment works and infrastructure. Energy required for treatment and distribution would therefore be unchanged from current operation and no additional emissions of greenhouse gases are anticipated.<br><br>UKCP22 climate change scenarios anticipate longer, hotter summers and, in turn, increases in both the frequency and duration of droughts. This | 0                                                                                     |

| SEA Topics and Objectives         |                                                                                                                            |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                |  |
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| SEA Topic                         | SEA Objective                                                                                                              | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Residual significance of effect (likely to remain after reasonable mitigation) |  |
| Air and Climate                   | to future changes in climate.                                                                                              | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | Overall the climate change scenario anticipates longer, hotter summers and in turn increased in both the frequency and duration of drought. The option would provide DCWW with additional capacity to manage drought conditions and as such is considered to contribute towards climate change adaptation. Therefore, a minor positive effect is anticipated.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | +                                                                              |  |
| Archaeology and Cultural Heritage | 7.1 To conserve and enhance historic assets/cultural heritage and their setting, including archaeological important sites. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <b>Effects of Construction</b><br>The option will not require construction of new infrastructure and as such, no impacts on this objective during construction have been considered.<br><br><b>Effects of Operation</b><br>A number of sites with historic or cultural designation are in proximity to the Afon Henwy along the reach affected by the operation of this option.<br><br>Gorseddau or Ynyspandy Slate Factory is a scheduled monument adjacent to the river. Pont Scethin is a bridge approximately half way along Reach 1 and is designated as a scheduled monument. There are also several Grade II listed buildings within 500m of the river, including Pont y pandy road bridge which crosses the watercourse. Whilst there is the potential for reduced flows to affect the settings of these assets, particularly where they experience views to/from the Afon Henwy; any effects in this regard would be temporary and reversible and in consequence, considered to be negligible.                                                                                                                          | 0                                                                              |  |
|                                   |                                                                                                                            | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None.<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | N/A                                                                            |  |
| Landscape and Visual Amenity      | 8.1 To conserve, protect and enhance landscape and townscape character and visual amenity.                                 | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <b>Effects of Construction</b><br>This option would be located within Eryri National Park, an area designated for its landscape character and beauty. However, no construction would be required and therefore no landscape or visual impacts are predicted.<br><br><b>Effects of Operation</b><br>Llyn Cwmystradlyn and the majority of the Afon Henwy are within Eryri National Park, which is of high landscape and amenity value. Reduction in water levels of the watercourse directly affects the landscape and visual amenity value of the site. However the impact on flows will only be temporary and will be ameliorated once the drought has passed. Although the impacts would be noticeable, lower flows would already be observed in the river as a result of natural drought conditions.<br><br>The water level in the reservoir would be maintained over a longer period than without the operation of the option, which would help maintain the beauty of the national park, which attracts visitors for activities such as walking. Due to the short-term nature, this effect is anticipated to be negligible. | -                                                                              |  |
|                                   |                                                                                                                            | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | Overall, the effect on landscape and visual amenity is assessed as minor negative due to the location of impacted reaches within Eryri National Park.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0                                                                              |  |

| Option Name:                  |                                                                                                                                                                                                                                                                                                       | 8033-34 - 2 Llyn Bodlyn                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                         | Water Resource Zone Name: |             | Barmouth / Lleyn Harlech |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |
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| Option Description:           |                                                                                                                                                                                                                                                                                                       | DCWW hold a licence to abstract water at Llyn Bodlyn, which includes the following conditions:<br>- 980 million litres (Ml) authorised to be abstracted per annum;<br>- an abstraction rate not exceeding 3.0Ml/d, with provision to increase to 3.5Ml/d on any 14 days during the year; and<br>- discharge of compensation water of 2.18 Ml/d to the Afon Ysgethin (a requirement of the Barmouth Local Board Act 1891).<br><br>The abstraction for potable supply is made directly from the reservoir and piped 5km by gravity to the local water treatment works (WTW) at Eithyn Fynydd for treatment and distribution. Abstraction under |                                                         |                           |             |                          |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |
| SEA Topics and Objectives     |                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                         |                           |             |                          |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |
| Assessment of option          |                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                         |                           |             |                          |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |
| SEA Topic                     | SEA Objective                                                                                                                                                                                                                                                                                         | Effect Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Scale of effect – geographical &/or population affected | Certainty of effect       | Duration    | Permanence               | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Residual significance of effect (likely to remain after reasonable mitigation)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |     |
| Biodiversity, flora and fauna | 1.1 To protect and enhance designated sites and their qualifying features, biodiversity, priority habitats and species ecological functions, capacity and habitat connectivity and to protect and enhance natural capital and the biodiversity and ecosystem services that contribute to the economy. | Negative                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Small                                                   | Medium                    | Medium-term | Temporary                | Medium              | High                            | <b>Effects of Construction</b><br>No additional construction is requirement for the implementation of the option, no effects from construction would occur.<br><br><b>Effects of Operation</b><br>The hydrological impacts associated with a reduction in compensation discharge will include reduction in river flows, with a corresponding reduction in wetted width and depth for the Afon Ysgethin. Reach 1 may experience moderate reductions in river flows of up to 20% at any of year the drought permit is implemented. Meanwhile, in Reach 2 moderate reductions of up to 17% in river flows are anticipated in the summer period only. The EAR concluded a moderate risk to river habitats in Reach 1, with respect to flow hydraulics and change in variability in usable habitat, with minor risks to connectivity also identified.<br><br>Llyn Bodlyn Reservoir is not located within European or nationally designated site for nature conservation, although is located within Eryri National Park. The reservoir discharges to the Afon Ysgethin, which flows to the Pen Llyn a’r Sarnau/ Lleyn Peninsula and the Pen Llyn a’r Sarna SAC and Gogledd Bae Ceredigion/ Northern Cardigan Bay SPA via the Coedydd Derw a Saffleoedd Ystlumod Meirion/ Meirionnydd Oakwoods and Bat Sites SAC. The option will result in reductions of up to 17% in river flows in Reach 2 (i.e. to the tidal limit), however, the risk to river habitats is considered negligible. The EAR concluded that low levels and flows will not significantly impact either of the SACs or SPA. The HRA concluded no likely significant effects on any qualifying features due to either absence of hydrologically dependent features not present in the watercourse or a lack of hydrological connectivity altogether. In addition, marine features were screened out as they are not dependent on freshwater inputs from the Afon Ysgethin. The river also flows through Coed Cors y Gredol SSSI which supports populations of nationally scarce bryophytes. Implementation of the drought permit has the potential to have a limited effect on wetted widths, splash zones and humidity within the river reach, thereby potentially impacting the bryophyte assemblage of the SSSI. A minor negative effect is anticipated for the SSSI. | --/?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |     |
|                               |                                                                                                                                                                                                                                                                                                       | Positive                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | N/A                                                     | N/A                       | N/A         | N/A                      | N/A                 | N/A                             | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | The EAR for this option has also identified potential impacts on aquatic ecology, including moderate impacts on fish and minor impacts on macroinvertebrates and macrophytes. Moderate impacts on Atlantic salmon (Reach 2) and Brown/sea trout (Reach 1) have been assessed, associated with the effects of reduced flows on upstream migration and reduction or loss of spawning and juvenile habitat. Minor impacts on European eel migration were also assessed.<br><br>Overall, taking into account the objective and guide questions, this option has been assessed as having a moderate (uncertain) effect on biodiversity in operation.<br><br><b>Mitigation</b><br>Several mitigation measures have been proposed to reduce the potential impacts on fish species during permit operation. These approaches include actions to deter predators and poaching, temporary reversion to the licensed compensation flow, aeration deployment and fish rescue (catch and transfer to fish refugia). Further information on potential mitigation actions is provided in Appendix C to the Llyn Bodlyn EAR.<br><br><b>Assumptions</b><br>None.<br><br><b>Uncertainty</b><br>There was medium confidence in the assessment of fisheries impacts due to the number of surveys and age of the most recent surveys completed. | N/A |
|                               | 1.2 To avoid and, where required, manage the introduction or spread of                                                                                                                                                                                                                                | Negative                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | N/A                                                     | N/A                       | N/A         | N/A                      | N/A                 | N/A                             | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>Effects of Construction</b><br>There are no construction requirements for this option therefore no effects on the spread of INNS have been considered.<br><br><b>Effects of Operation</b><br>No INNS features that are susceptible to drought permit impacts have been identified, therefore INNS have not been considered further.<br><br><b>Mitigation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | N/A |

| SEA Topics and Objectives   |                                                                                                                                     |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                |
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| SEA Topic                   | SEA Objective                                                                                                                       | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Residual significance of effect (likely to remain after reasonable mitigation) |
|                             | Introduction of spread of invasive and non-native species (INNS).                                                                   | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | N/A                                                                            |
| Population and human health | 2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing). | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>No construction is required for the implementation of this option and therefore no effects are anticipated on water quality or clean drinking water supply. There would be no direct disturbance to local residents, therefore a neutral effect is identified.<br><br><b>Effects of Operation</b><br>The operation of this option will conserve 0.44Ml/d for Barmouth/Lleyn Harlech WRZ. This will help to maintain essential public water supplies during drought conditions, and therefore help maintain public health and well-being. Consistent with the criteria of significance, this has been assessed as having a minor positive effect on this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                                                                              |
|                             |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | +                                                                              |
|                             | 2.2 To protect and enhance the economic and social needs of the local community.                                                    | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>No construction is required for the implementation of this option therefore there will be no effect on the availability of water for local people and visitors to maintain economic activity in times of drought. Further, it is not anticipated that the option would generate any economic benefits (e.g. job creation or supply chain investment).<br><br><b>Effects of Operation</b><br>This option will provide an additional yield of 0.44 Ml/d, helping to meet the needs of homes, businesses and visitors to this area during periods of drought, supporting the local and regional economy. Within the definitions of significance thresholds, this is considered to be a minor positive effect.<br><br>The EAR identifies that any reduction in wetted width and depth may influence water-dependent activities such as angling and canoeing. However, water levels will already be naturally low in times of drought and will already have curtailed these recreational activities prior to the drought order implementation. Any impacts will be temporary in nature and will be ameliorated once the drought has passed. As such, an overall neutral effect has been identified. | 0                                                                              |
|                             |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | +                                                                              |
|                             |                                                                                                                                     | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>No construction is required for this option and therefore will not require the use of raw materials.<br><br><b>Effects of Operation</b><br>The option involve modifications to compensation flow only and no changes to energy use, generated waste or sustainable design are envisaged. The option will make use of existing infrastructure resulting in a minor positive effect on this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | N/A                                                                            |
|                             |                                                                                                                                     |             |                                                         |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                |

| SEA Topics and Objectives |                                                                                                                                                              |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                |
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| SEA Topic                 | SEA Objective                                                                                                                                                | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Residual significance of effect (likely to remain after reasonable mitigation) |
| Land resource use         | Resource use and waste production.                                                                                                                           | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | +                                                                              |
| Water                     | 4.1 To protect and enhance the quality of surface, groundwater, estuarine and coastal water and help achieve the objectives of the Water Framework Directive | Negative    | Small                                                   | Low                 | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>There is no construction associated with this option therefore no resulting effects on water quality or WFD status are anticipated.<br><br><b>Effects of Operation</b><br>This option would potentially result in a moderate reduction of flows in Afon Ysgethin downstream of Llyn Bodlyn (up to 20% in Reach 1 at any time of year and up to 17% in Reach 2 during the summer). The Afon Ysgethin is a heavily modified waterbody due to the impoundment and abstraction from the reservoir. The ecological quality (WFD Cycle 3) of the Llyn Bodlyn Reservoir is 'Moderate' and the Afon Ysgethin is 'Good'. Reduction of compensation flow could impact on water quality in the river and could cause some deterioration of the ecological quality. The EAR concluded negligible risks to water quality in both Reach 1 and 2. However, there is some uncertainty due to insufficient data availability. Therefore, a neutral effect has been assessed against this objective with uncertainty.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0/?                                                                            |
|                           |                                                                                                                                                              | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>Insufficient water quality monitoring data available for the period 2015-2024 within the impacted reaches.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | N/A                                                                            |
|                           | 4.2 To avoid negative impact on surface and groundwater levels and flows, including when this impacts on habitats and/or navigation.                         | Negative    | Small                                                   | Medium              | Short-term | Temporary  | Medium              | Medium                          | <b>Effects of Construction</b><br>No construction is required to implement this option as it makes use of existing infrastructure, therefore no effects in this regard are assessed for this objective.<br><br><b>Effects of Operation</b><br>The reduction in compensation flow from 2.18ML/d to 1.74ML/d from Llyn Bodlyn represents a 20% reduction in summer low and extreme low flows in the upper Afon Ysgethin immediately below the reservoir (Reach 1). The impact would be similar for low and median flows if the drought permit was required in during October and November. The impact in Reach 2 is similar with a 12-17% reduction due to some flow accretion throughout Reach 1. The hydrological impact of the drought permit in Reach 1 is assessed as moderate for both the summer drawdown period (June - September) and the autumn/winter refill period (October - November). In Reach 2 the impact is assessed as moderate during summer and negligible in autumn/winter. The resulting impact on river habitats is assessed as moderate in Reach 1 only, including for changes in flow hydraulics and change in variability of usable habitat. There are additional minor risks to connectivity.<br><br>The impact on Llyn Bodlyn would be a marginal increase in levels / storage, relative to the position without the drought permit, due to the reduced compensation outflow which would help to conserve water in storage. The length of time of shoreline exposure would be slightly shorter, compared to the baseline drought scenario, as the reservoir would reach top water level slightly earlier during the winter refill period. This is considered to be a minor positive effect.<br><br>Overall, the effect of this option on surface water levels and flows is assessed as moderate negative (with uncertainty due to assumptions used) and minor positive. | -1/?                                                                           |
|                           |                                                                                                                                                              | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Mitigation</b><br>None.<br><br><b>Assumptions</b><br>Contribution of the Llyn Bodlyn compensation to downstream river flow is unknown but assumed to be significant.<br><br><b>Uncertainty</b><br>None.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | +                                                                              |

| SEA Topics and Objectives  |                                                                                                                                                                                         |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                |
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| SEA Topic                  | SEA Objective                                                                                                                                                                           | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Residual significance of effect (likely to remain after reasonable mitigation) |
|                            | 4.3 To increase water efficiency and increase resilience of Public Water Supply (PWS) and natural systems to droughts.                                                                  | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>No construction is required to implement this option as it makes use of existing infrastructure, therefore no effects in this regard are assessed for this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | N/A                                                                            |
|                            |                                                                                                                                                                                         | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Operation</b><br>This option is not a water efficiency measure. However, during operation of this option, a reduction in compensation flow to the Afon Ysgethin will result in up to 0.44Ml/d of additional water resource being available for use helping to ensure the maintenance of public water supplies. Therefore, this option is assessed as having a minor positive operational effect.                                                                                                                                                                                                                                                                    | +                                                                              |
| Soil, geology and land use | 5.1 To contribute to sustainable use of land and protect and enhance the functionality and quality of soils, including the protection of high-grade agricultural land and geodiversity. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>The option requires no construction and therefore its implementation is not anticipated to result in any effects on land use or soils.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0                                                                              |
|                            |                                                                                                                                                                                         | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Operation</b><br>This option would result in reduced water levels in Afon Ysgethin. Conceivably, this could lead to drying out of soils adjacent to the river (which could already be affected during an extended period of low rainfall). The lower reaches of the Afon Ysgethin are an incised channel with a steep gradient (1 in 13). The steep gradient of this reach and the narrow boulder/cobble-bed river channel produce a cascade-pool effect, reducing the wetted depth sensitivity of the watercourse during episodes of low flow. In the absence of any designated wetland sites or upland soils near the river a neutral effect has been determined. | N/A                                                                            |
| Air and Climate            | 6.1 To reduce and minimise air emissions.                                                                                                                                               | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>No construction is required to implement this option and so there is no pathway to cause an increase or reduce air quality emissions as part of this option.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0                                                                              |
|                            |                                                                                                                                                                                         | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Operation</b><br>The drought option involves reducing the compensation flow from the reservoir and therefore no impacts to air quality are anticipated. There are no AQMAs within 500m of Llyn Bodlyn or the impacted reaches. A neutral effect is expected with regard to this objective.                                                                                                                                                                                                                                                                                                                                                                          | N/A                                                                            |

| SEA Topics and Objectives         |                                                                                                                            |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                |  |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------|---------------------------------------------------------|---------------------|------------|------------|---------------------|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|--|
| SEA Topic                         | SEA Objective                                                                                                              | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Residual significance of effect (likely to remain after reasonable mitigation) |  |
| Air and Climate                   | 6.2 To reduce carbon emissions and to adapt to future changes in climate.                                                  | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>No construction is required to implement this option, therefore a neutral effect has been assessed against this objective.<br><br><b>Effects of Operation</b><br>Operational energy requirements and associated carbon emissions have not been quantified by DCWW for any options at this stage and therefore a qualitative assessment has been made based on the infrastructure required to implement this option.<br><br>This option will involve a change to the release rate from the reservoir. Water would be treated through existing treatment works and infrastructure. Energy required for treatment and distribution would therefore be unchanged from current operation and no additional emissions of greenhouse gases are anticipated.<br><br>UKCP22 climate change scenarios anticipate longer, hotter summers and, in turn, increases in both the frequency and duration of droughts. This option would provide DCWW with additional capacity to manage drought conditions and as such is considered to contribute towards climate change adaptation. Therefore, a minor positive effect is anticipated.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                                                                              |  |
|                                   |                                                                                                                            | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | +                                                                              |  |
| Archaeology and Cultural Heritage | 7.1 To conserve and enhance historic assets/cultural heritage and their setting, including archaeological important sites. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>The option will not require construction of new infrastructure and as such, no impacts on this objective during construction have been considered.<br><br><b>Effects of Operation</b><br>A number of sites with historic or cultural designation are in proximity to the Afon Ysgethin along the reaches affected by the operation of this option. Pont Scethin is a bridge approximately half way along Reach 1 and is designated as a scheduled monument. In Reach 2, the Afon Ysgethin flows through a registered park and garden (Cors-y-Gedol). There are also several Grade II listed buildings around Tal-y-bont, including a road bridge which crosses the watercourse. Whilst there is the potential for reduced flows to affect the settings of these assets, particularly where they experience views to/from the Afon Ysgethin; any effects in this regard would be temporary and reversible and in consequence, be negligible.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0                                                                              |  |
|                                   |                                                                                                                            | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None.<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | N/A                                                                            |  |
| Landscape and                     | 8.1 To conserve, protect and enhance landscape and townscape.                                                              | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>This option would be located within Eryri National Park, an area designated for its landscape character and beauty. However, no construction would be required and therefore no landscape or visual impacts are predicted.<br><br><b>Effects of Operation</b><br>Llyn Bodlyn and the Afon Ysgethin lie within the Meirionnydd area, a mountainous area with deep valleys, wide estuaries and extensive sandy beaches. The site lies within the Eryri National Park and is of high overall landscape and visual amenity value. A review of the hydrological implications of implementing the option at this site has identified that both Llyn Bodlyn and the Afon Ysgethin will be affected. Reduction in water levels directly affects the landscape and visual amenity value of the site, although this will only be temporary and will be ameliorated once the drought has passed.<br><br>Llyn Bodlyn and the Afon Ysgethin fall within the Meirionnydd area, a mountainous area with deep valleys, wide estuaries and extensive sandy beaches. The study area lies within the Eryri National Park and is of high overall landscape and visual amenity value. There are a number of footpaths crossing the Afon Ysgethin, although in the upper reach the footpaths do not follow the river bank. From Pont Fadog downstream, there is a footpath close to the river. Landscape and visual amenity impacts may therefore be visible from public rights of way, footpaths, cycle routes and river crossings. However the impact on flows will only be temporary and will be ameliorated once the drought has passed. Although the impacts would be | -                                                                              |  |



| SEA Topics and Objectives |                                                  |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                |
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| SEA Topic                 | SEA Objective                                    | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Residual significance of effect (likely to remain after reasonable mitigation) |
| Visual Amenity            | land and townscape character and visual amenity. | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <p>noticeable, lower flows would already be observed in the river as a result of natural drought conditions.</p> <p>The water level in the reservoir would be maintained over a longer period than without the operation of the option, which would help maintain the beauty of the national park, which attracts visitors for activities such as walking. Due to the short-term nature, this effect is anticipated to be negligible.</p> <p>Overall, the effect on landscape and visual amenity is assessed as minor negative due to the location of impacted reaches within Eryri National Park.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p> | 0                                                                              |

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                           |                          |
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| Option Name:        | 8033-34-4 Llyn Cwmystradllyn                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Water Resource Zone Name: | Barmouth / Lleyn Harlech |
| Option Description: | <p>The proposed scheme is to retain freshet reservation in the reservoir, for use to support provision of essential public water supplies through the drought. The drought permit would enable 40% (64MI) of the freshet allocation (159.11 MI) to be reallocated for public water supply. The permit could be applied for during the period August to October, inclusive, and no additional 'conditional allocation' to freshet use will be made.</p> <p>When a drought permit is in place, monitoring of Llyn Cwmystradllyn Reservoir level and modelled prediction of its refill may provide confidence that the drought risk has passed. Operation could then revert to the normal licensed freshet allocation before the end of the permit period.</p> |                           |                          |

| SEA Topics and Objectives     |                                                                                                                                                                                                                                                                                                       |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                |
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| SEA Topic                     | SEA Objective                                                                                                                                                                                                                                                                                         | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Residual significance of effect (likely to remain after reasonable mitigation) |
| Biodiversity, flora and fauna | 1.1 To protect and enhance designated sites and their qualifying features, biodiversity, priority habitats and species ecological functions, capacity and habitat connectivity and to protect and enhance natural capital and the biodiversity and ecosystem services that contribute to the economy. | Negative    | Small                                                   | Medium              | Short-term | Temporary  | Medium              | Medium                          | <p><b>Effects of Construction</b></p> <p>No additional construction is requirement for the implementation of the option, no effects from construction would occur.</p> <p><b>Effects of Operation</b></p> <p>The drought permit involves retaining approximately 40% of the total volume of the freshet bank, 64 MI, within storage in Llyn Cwmystradllyn reservoir and making this additional volume available for public supply. The volume of water held within the freshet bank would usually allow for two such 5-day releases to be made in a season, and it is assumed that typically these would be required in mid-September and mid-October, to improve passage of migratory salmonid species. Implementation of the drought permit would mean that freshet releases to the downstream watercourse could still take place on one occasion, typically over a 5-day period in mid-September, during the duration of the drought permit. A second similar release in mid-October would not be possible as there would be insufficient water remaining in the bank. The hydrological impact of the drought permit on the initial reach of the Afon Henwy downstream of Llyn Cwmystradllyn is assessed as negligible for both the summer drawdown period (August to September) and the autumn/winter refill period (October) while the drought permit remains in force. As a result, no impacts to water quality in the Afon Henwy downstream are anticipated. Some 3.6 km downstream of Llyn Cwmystradllyn the first significant tributary, the Afon Ddu joins. This provides further flow variability in the downstream Afon Henwy and its continuation, the Afon Dwyfor. This additional flow variability verifies that the zone of influence of the freshet release is local, and it does not provide any significant flow elevation further downstream in the catchment, or at the tidal limit. The freshet release is not a significant factor in the initiation of migration from estuary to freshwater. Therefore, impacts to levels and flow in the downstream Afon Henwy are assessed as neutral.</p> <p>No statutory designated sites have been identified in the vicinity of the impacted reach, therefore no effects have been considered. Due to the negligible hydrological impacts identified for the Afon Henwy, no ecological receptors have been identified as being sensitive to the drought permit therefore no further assessment has been undertaken. Similarly, the HRA concluded no likely significant effects on designated sites due to sufficient distance or lack of hydrological connectivity. Therefore a neutral effect is identified in this regard.</p> <p>The impact on Llyn Cwmystradllyn would 64 MI of additional storage conservation in the reservoir, with proportionately higher water level, reservoir surface area and reservoir wetted perimeter. This may result in potential improvements to reservoir water quality, including with respect to the quality of the compensation water released. This is assessed as a minor positive effect. This could have minor positive effects on the ecology of the reservoir, although this effect is uncertain.</p> | 0/?                                                                            |
|                               |                                                                                                                                                                                                                                                                                                       | Positive    | Small                                                   | Medium              | Short-term | Temporary  | Medium              | Medium                          | <p><b>Mitigation</b></p> <p>Several mitigation measures have been proposed to reduce the potential impacts on fish species during permit operation. These approaches include actions to deter predators and poaching, temporary reversion to the licensed compensation flow, aeration deployment and fish rescue (catch and transfer to fish refugia). Further information on potential mitigation actions is provided in Appendix C to the Llyn Cwmystradllyn EAR.</p> <p><b>Assumptions</b></p> <p>None</p> <p><b>Uncertainty</b></p> <p>There was medium confidence in the assessment of fisheries impacts due to the number of surveys and age of the most recent surveys completed.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | +/?                                                                            |

| SEA Topics and Objectives   |                                                                                                                                     |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                |
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| SEA Topic                   | SEA Objective                                                                                                                       | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Residual significance of effect (likely to remain after reasonable mitigation) |
|                             | 1.2 To avoid and, where required, manage the introduction or spread of invasive and non-native species (INNS).                      | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>There are no construction requirements for this option, therefore, no effects on the spread of INNS have been anticipated.<br><br><b>Effects of Operation</b><br>No INNS features that are susceptible to drought permit impacts have been identified, therefore INNS have not been considered further.<br><br><b>Mitigation</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | N/A                                                                            |
|                             |                                                                                                                                     | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | N/A                                                                            |
| Population and human health | 2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing). | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>No construction is required for the implementation of this option and therefore no effects are anticipated on water quality or clean drinking water supply. There would be no direct disturbance to local residents, therefore a neutral effect is identified.<br><br><b>Effects of Operation</b><br>The proposed scheme is to retain 40% freshet reservation in the reservoir to support the Barmouth/Lleyn Harlech WRZ. This will help to maintain essential public water supplies during drought conditions, and therefore help maintain public health and well-being. This has been assessed as having a minor positive effect on this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0                                                                              |
|                             |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | +                                                                              |
|                             | 2.2 To protect and enhance the economic                                                                                             | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>No construction is required for the implementation of this option, therefore, there will be no effect on the availability of water for local people and visitors to maintain economic activity in times of drought. Further, it is not anticipated that the option would generate any economic benefits (e.g. job creation or supply chain investment).<br><br><b>Effects of Operation</b><br>This option will conserve additional water resource, helping to meet the needs of homes, businesses and visitors to this area. This is considered to be a minor positive effect.<br><br>Recreational activities in the area include walking, climbing, angling and fishing. The EAR identifies that any reduction in wetted width and depth may influence water-dependent activities such as angling. However, the EAR concluded negligible hydrological impact to the Afon Henwy and water levels will already be naturally low in times of drought and will already have curtailed these recreational activities prior to the drought order implementation. As such, a negligible effect has been identified. | N/A                                                                            |
|                             |                                                                                                                                     |             |                                                         |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                |

| SEA Topics and Objectives        |                                                                                       |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                       |
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| SEA Topic                        | SEA Objective                                                                         | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Residual significance of effect <i>(likely to remain after reasonable mitigation)</i> |
|                                  | and social needs of the local community.                                              | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | The impact on Llyn Cwmystradllyn would be 64 Ml of additional storage conservation in the reservoir, with a proportionately higher water level, reservoir surface area and reservoir wetted perimeter. This may have positive effects on recreational use of the reservoir during drought and a minor positive effect is assessed.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | +                                                                                     |
| Material assets and resource use | 3.1 To minimise resource use and waste production.                                    | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>No construction is required for this option and therefore will not require the use of raw materials.<br><br><b>Effects of Operation</b><br>The option involves modifications to freshet bank release only and no changes to generated waste or sustainable design are envisaged. No changes in energy use are anticipated compared to current operations. The option will make use of existing infrastructure resulting in a minor positive effect on this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0                                                                                     |
|                                  |                                                                                       | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | +                                                                                     |
| Water                            | 4.1 To protect and enhance the quality of surface, groundwater, estuarine and coastal | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>There is no construction associated with this option, therefore, no resulting effects on water quality or WFD status are anticipated.<br><br><b>Effects of Operation</b><br>The drought permit involves retaining approximately 40% of the total volume of the freshet bank, 64 Ml, within storage in Llyn Cwmystradllyn reservoir and making this additional volume available for public supply. Implementation of the drought permit would mean that freshet releases to the downstream watercourse could still take place on one occasion, typically over a 5-day period in mid-September, during the duration of the drought permit. A second similar release in mid-October would not be possible as there would be insufficient water remaining in the bank. The hydrological impact of the drought permit on the initial reach of the Afon Henwy downstream of Llyn Cwmystradllyn is assessed as negligible for both the summer drawdown period (August to September) and the autumn/winter refill period (October) while the drought permit remains in force. As a result, no impacts to water quality in the Afon Henwy downstream are anticipated. | 0                                                                                     |

| SEA Topics and Objectives |                                                                                                                                      |                                                                    | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| SEA Topic                 | SEA Objective                                                                                                                        | Effect Type                                                        | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Residual significance of effect (likely to remain after reasonable mitigation)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Water                     | water and help achieve the objectives of the Water Framework Directive                                                               | Positive                                                           | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <p>The impact on Llyn Cwmystradllyn would be an additional 64 Ml of storage conservation in the reservoir, with proportionately higher water level, reservoir surface area and reservoir wetted perimeter. This may result in potential improvements to reservoir water quality, including with respect to the quality of the compensation water released. This is assessed as a minor positive effect.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>No data is available on the actual freshet release therefore an illustrative freshet release has been assumed.</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | +                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                           | 4.2 To avoid negative impact on surface and groundwater levels and flows, including when this impacts on habitats and/or navigation. | Negative                                                           | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <p><b>Effects of Construction</b><br/>No construction is required to implement this option as it makes use of existing infrastructure, therefore no effects in this regard are assessed for this objective.</p> <p><b>Effects of Operation</b><br/>The drought permit involves retaining approximately 40% of the total volume of the freshet bank, 64 Ml, within storage in Llyn Cwmystradllyn reservoir and making this additional volume available for public supply. Implementation of the drought permit would mean that freshet releases to the downstream watercourse could still take place on one occasion, typically over a 5-day period in mid-September, during the duration of the drought permit. A second similar release in mid-October would not be possible as there would be insufficient water remaining in the bank. The hydrological impact of the drought permit on the initial reach of the Afon Henwy downstream of Llyn Cwmystradllyn is assessed as negligible for both the summer drawdown period (August to September) and the autumn/winter refill period (October) while the drought permit remains in force. Some 3.6 km downstream of Llyn Cwmystradllyn the first significant tributary, the Afon Ddu joins. This provides further flow variability in the downstream Afon Henwy and its continuation the Afon Dwyfor. This additional flow variability verifies that the zone of influence of the freshet release is local, and it does not provide any significant flow elevation further downstream in the catchment, or at the tidal limit. The freshet release is not a significant factor in the initiation of migration from estuary to freshwater. Therefore, impacts to levels and flow in the downstream Afon Henwy are assessed as neutral.</p> | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                           |                                                                                                                                      | Positive                                                           | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <p>The impact on Llyn Cwmystradllyn would be an additional 64 Ml of storage conservation in the reservoir, with proportionately higher water level, reservoir surface area and reservoir wetted perimeter. The option would also improve the prospect of winter refill. A minor positive effect has been assessed in this regard.</p> <p>Overall, a neutral negative and minor positive effect is assessed against this objective.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>No data available on actual freshet release on which assessment can be based therefore an illustrative freshet release has been assumed.</p> <p><b>Uncertainty</b><br/>None.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | +                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                           | Water                                                                                                                                | 4.3 To increase water efficiency and increase resilience of Public | Negative                                                | N/A                 | N/A        | N/A        | N/A                 | N/A                             | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p><b>Effects of Construction</b><br/>No construction is required to implement this option as it makes use of existing infrastructure, therefore, no effects in this regard are assessed for this objective.</p> <p><b>Effects of Operation</b><br/>This option is not a water efficiency measure. However, during operation of this option, retaining up to 40% of the freshet bank for public water use will result in additional water available and ensure the maintenance of public water supplies. Therefore, this option is assessed as having a minor positive operational effect.</p> |

| SEA Topics and Objectives  |                                                                                                                                                                                         |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                |
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| SEA Topic                  | SEA Objective                                                                                                                                                                           | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Residual significance of effect (likely to remain after reasonable mitigation) |
|                            | Water Supply (PWS) and natural systems to droughts.                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | Mitigation<br>None<br><br>Assumptions<br>None<br><br>Uncertainty<br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | +                                                                              |
| Soil, geology and land use | 5.1 To contribute to sustainable use of land and protect and enhance the functionality and quality of soils, including the protection of high-grade agricultural land and geodiversity. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | Effects of Construction<br>The option requires no construction and therefore its implementation is not anticipated to result in any effects on land use or soils.<br><br>Effects of Operation<br>The EAR concluded negligible hydrology impact for the Afon Henwy, therefore, there is no risk of the drought permit resulting in effects on soils adjacent to the river (which could already be affected during an extended period of low rainfall). The EAR concluded negligible risks to changes in sediment dynamics or channel morphology. In the absence of any designated wetland sites or upland soils near the river a neutral effect has been determined. | 0                                                                              |
|                            |                                                                                                                                                                                         | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | Mitigation<br>None<br><br>Assumptions<br>None<br><br>Uncertainty<br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | N/A                                                                            |
| Air and Climate            | 6.1 To reduce and minimise air emissions.                                                                                                                                               | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | Effects of Construction<br>No construction is required to implement this option and so there is no pathway to cause an increase or reduce air quality emissions as part of this option.<br><br>Effects of Operation<br>The drought option involves retaining part of the freshet bank for public water supply, therefore, no impacts to air quality are anticipated. There are no AQMAs within 500m of Llyn Cwmystadllyn nor the impacted reaches. A neutral effect is expected with regard to this objective.                                                                                                                                                      | 0                                                                              |
|                            |                                                                                                                                                                                         | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | Mitigation<br>None<br><br>Assumptions<br>None<br><br>Uncertainty<br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | N/A                                                                            |

| SEA Topics and Objectives         |                                                                                                                            |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                |
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| SEA Topic                         | SEA Objective                                                                                                              | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Residual significance of effect (likely to remain after reasonable mitigation) |
| Air and Climate                   | 6.2 To reduce carbon emissions and to adapt to future changes in climate.                                                  | Negative    | Small                                                   | Medium              | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>No construction is required to implement this option, therefore a neutral effect has been assessed against this objective.<br><br><b>Effects of Operation</b><br>Operational energy requirements and associated carbon emissions have not been quantified by DCWW for any options at this stage and therefore a qualitative assessment has been made based on the infrastructure required to implement this option.<br><br>The option involves retaining part of the freshet bank volume within the reservoir for public supply, and limiting the number of freshet releases during implementation. The energy and infrastructure required is anticipated to remain unchanged from current operation and no additional emissions of greenhouse gases are expected, however this assessment is uncertain.                                                                                                                                                        | 0/?                                                                            |
|                                   |                                                                                                                            | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | UKCP22 climate change scenarios anticipate longer, hotter summers and, in turn, increases in both the frequency and duration of droughts. This option would provide DCWW with additional capacity to manage drought conditions and as such is considered to contribute towards climate change adaptation. Therefore, a minor positive effect is anticipated.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | +                                                                              |
| Archaeology and Cultural Heritage | 7.1 To conserve and enhance historic assets/cultural heritage and their setting, including archaeological important sites. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <b>Effects of Construction</b><br>The option will not require construction of new infrastructure and as such, no impacts on this objective during construction are anticipated.<br><br><b>Effects of Operation</b><br>A number of sites with historic or cultural designation are in proximity to the Afon Henwy however the EAR concluded negligible hydrological impact as a result of the drought permit. Therefore, a neutral effect is assessed against this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0                                                                              |
|                                   |                                                                                                                            | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None.<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | N/A                                                                            |
| Landscape and                     | 8.1 To conserve, protect and enhance landscape and townscape                                                               | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <b>Effects of Construction</b><br>This option would be located within Eryri National Park, an area designated for its landscape character and beauty. However, no construction would be required and therefore no landscape or visual impacts are predicted.<br><br><b>Effects of Operation</b><br>Llyn Cwmystadrlllyn and the majority of the Afon Henwy are within Eryri National Park, which is of high landscape and amenity value. Reduction in water levels in the watercourse directly affects the landscape and visual amenity value of the site. However, the EAR concluded negligible hydrological impact in the Afon Henwy therefore impacts to landscape along these reaches are considered neutral, especially considering lower flows would already be observed in the river as a result of natural drought conditions.<br><br>The drought option would ensure 64Ml of additional storage in Llyn Cwmystadrlllyn, providing a proportionately higher water level, reservoir surface | 0                                                                              |



| SEA Topics and Objectives |                                                  |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                  |                                                                                |
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| SEA Topic                 | SEA Objective                                    | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                       | Residual significance of effect (likely to remain after reasonable mitigation) |
| Visual Amenity            | land and townscape character and visual amenity. | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | area and wetted perimeter. This would have positive effects on landscape and visual amenity, however, any effect would be short-term and temporary. A minor positive effect has been assessed given the location of the reservoir within the National Park.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None | +                                                                              |

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                           |        |
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| Option Name:        | 8121-1 Llwyn Onn                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Water Resource Zone Name: | SEWCUS |
| Option Description: | <p>Llwyn Onn Reservoir sits as the furthest downstream of the three Taf Fawr Reservoirs, with Cantler and Beacons Reservoirs feeding into Llwyn Onn from upstream. Together, they form a major water supply for the SEWCUS WRZ, providing over 34,000 Ml potable supply per year. The potable supply is transferred, via gravity alone, directly to Llwyn-onn WTW. The reservoirs release into the Afon Taf Fawr, flowing into the River Taff after its confluence with Afon Taf Fechan. Welsh Water also hold a second abstraction licence for Llwyn Onn Reservoir, to release a further 18.2 Ml/day into the Afon Taf Fawr for non-consumptive use in the fisheries immediately downstream of the reservoir impoundment. The non-consumptiveness also means it effectively acts as a compensation release for the Afon Fawr and River Taff.</p> <p>The drought option proposed to reduce the compensation flow normally required from Llwyn Onn Reservoir to conserve reservoir storage by 20% (3.62 Ml/d) between July and December inclusive. Reducing it from the normal compensation requirement of 18.18 Ml/d to not less than 14.56 Ml/d.</p> |                           |        |

| SEA Topics and Objectives     |                                                                                                                                                                                                                                                                                                       | Assessment of option |                                                         |                     |             |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Residual significance of effect (likely to remain after reasonable mitigation) |
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| SEA Topic                     | SEA Objective                                                                                                                                                                                                                                                                                         | Effect Type          | Scale of effect – geographical &/or population affected | Certainty of effect | Duration    | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                |
| Biodiversity, flora and fauna | 1.1 To protect and enhance designated sites and their qualifying features, biodiversity, priority habitats and species ecological functions, capacity and habitat connectivity and to protect and enhance natural capital and the biodiversity and ecosystem services that contribute to the economy. | Negative             | Small                                                   | Medium              | Medium-term | Temporary  | Medium              | High                            | <p><b>Effects of Construction</b></p> <p>The option would require no additional construction to take place and no effects on biodiversity are predicted. A neutral effect has been determined against this objective.</p> <p><b>Effects of Operation</b></p> <p>The hydrological impacts associated with a reduction in the compensation flow from Llwyn Onn Reservoir range from minor to moderate and will include an up to 20% reduction in flows in Reach 1 (Llwyn Onn Reservoir outflow to the confluence with Taf Fechan), up to 10% in Reach 2 (confluence with Taf Fechan to the confluence with Afon Taf Bargoed) and up to 10% in Reach 3 (confluence with Afon Taf Bargoed to the confluence with Afon Cynon). There are some areas of Priority Habitat within 500m of this option however none are water-dependant and therefore no effect is anticipated. The EAR has identified this option may have adverse impacts on notable species within Reach 1, including minor impacts on notable bryophytes (e.g. <i>Fissidens rufulus</i>) as the changes in flow may cause changes to inundation pattern and splash. The EAR also concluded moderate impacts on several fish species, including Atlantic salmon and Brown/sea trout in both Reach 1 and 2 and on bullhead in Reach 1 only. These impacts are as a result of delays and potential cessation of upstream adult and smolt migration due to reduced flows as well as loss of spawning and juvenile habitat. Effects in Reach 3 are assessed as negligible. These effects are anticipated to be short-term, temporary and reversible.</p> <p>The Severn Estuary Ramsar is located 42km from the option, however, is in hydrological connectivity to the Afon Taf. The HRA screened this site in due to potential impacts on migratory fish (specifically Atlantic salmon). Available data suggest that the Afon Taf Fawr within the hydrological zone of influence (Reaches 1-3) constitutes an essential migratory pathway for Atlantic salmon with the potential to provide important spawning and nursery habitat. The HRA concluded that the drought permit could have a likely significant effect (LSE) on the integrity of the European site. This assessment was made on a precautionary basis until the scale and likelihood of an adverse effect can be confirmed through further data collection.</p> <p>A major negative effect is therefore assessed against this objective as LSEs cannot be ruled out for the qualifying features of the Severn Estuary Ramsar. This assessment is uncertain until further data are collected.</p> <p><b>Mitigation</b></p> <p>Several mitigation measures have been proposed to reduce the potential impacts on fish species during permit operation. These approaches include actions to deter predators and poaching, temporary reversion to the licensed compensation flow, aeration deployment and fish rescue (catch and transfer to fish refugia). Further information on potential mitigation actions is provided in Appendix C to the Llwyn Onn EAR. Further mitigation is outlined in the Stage 2 Appropriate Assessment in the HRA.</p> <p><b>Assumptions</b></p> <p>None</p> <p><b>Uncertainty</b></p> <p>Further data are required to better understand the distribution of habitats in the reach to improve certainty on the scale and likelihood of impact.</p> | ---/?                                                                          |
|                               |                                                                                                                                                                                                                                                                                                       | Positive             | N/A                                                     | N/A                 | N/A         | N/A        | N/A                 | N/A                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | N/A                                                                            |
|                               | 1.2 To avoid and, where required, manage the introduction or spread of                                                                                                                                                                                                                                | Negative             | N/A                                                     | N/A                 | N/A         | N/A        | N/A                 | N/A                             | <p><b>Effects of Construction</b></p> <p>There are no construction requirements for this option that would result in an effect with regards to the spread of INNS</p> <p><b>Effects of Operation</b></p> <p>The implementation of this drought permit is not anticipated to increase the spread of Invasive non-native species. No INNS features that are susceptible to drought permit impacts have been identified, therefore INNS have not been considered further.</p> <p><b>Mitigation</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | N/A                                                                            |

| SEA Topics and Objectives   |                                                                                                                                     |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                |
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| SEA Topic                   | SEA Objective                                                                                                                       | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Residual significance of effect (likely to remain after reasonable mitigation) |
|                             | Introduction or spread of invasive and non-native species (INNS).                                                                   | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | N/A                                                                            |
| Population and human health | 2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing). | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <b>Effects of Construction</b><br>No construction is required for the implementation of this option and therefore no effects are anticipated on water quality or clean drinking water supply. There would be no direct disturbance to local residents, therefore a neutral effect is identified.<br><br><b>Effects of Operation</b><br>The operation of this option will conserve 3.62MI/d for SEWCUS WRZ. This will help to maintain essential public water supplies during drought conditions, and therefore help maintain public health and well-being. The option requires only a change in compensation flow and requires no additional materials or assets in order to operate, therefore nearby communities will not experience any nuisance from additional processes or vehicle movements.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0                                                                              |
|                             |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Medium              | High                            | A National Cycle Network route runs adjacent to Reach 2 and 3 along with several PRoW. There is potential for visual amenity to be impacted during operation of the drought permit, although this will be in the context of already low river levels due to natural drought conditions and therefore the impact is considered to be negligible.<br><br>Overall, this has been assessed as having a moderate positive effect on this objective.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ++                                                                             |
|                             | 2.2 To protect and enhance the economic                                                                                             | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>No construction is required for the implementation of this option therefore there will be no effect on the availability of water for local people and visitors to maintain economic activity in times of drought. Further, it is not anticipated that the option would generate any economic benefits (e.g. job creation or supply chain investment).<br><br><b>Effects of Operation</b><br>This option will provide an additional yield of 3.62 MI/d, helping to meet the needs of homes, businesses and visitors to this area during periods of drought, supporting the local and regional economy. The WRZ does not exhibit the same water demand patterns as other water resource zones due to the seasonal tourist influx to the National Park. Within the definitions of significance thresholds, this is considered to be a moderate positive effect.<br><br>Whilst there are some local PRoW, there are no national trails or country parks within 500m of the option.<br><br>Llwynon Reservoir and part of the Taf Fawr (Reach 1) are located within Bannau Brycheiniog National Park. There are several PRoW along the valley sides as well as a national cycle route. The landscape and visual amenity surrounding these assets is varied and appealing and comprise important recreational and tourism assets for activities such as hiking and cycling. The reduction in water levels during drought could temporarily | 0                                                                              |

| SEA Topics and Objectives        |                                                                                                                                                              |             | Assessment of option                                    |                     |             |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                       |
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| SEA Topic                        | SEA Objective                                                                                                                                                | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration    | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Residual significance of effect <i>(likely to remain after reasonable mitigation)</i> |
|                                  | and social needs of the local community.                                                                                                                     | Positive    | Small                                                   | High                | Short-term  | Temporary  | Medium              | High                            | <p>Important recreational and tourism assets for activities such as hiking and cycling. The reduction in water levels during drought could temporarily affect the visual amenity in these areas as well as other recreational activities such as fishing, however, impacts will be short-term and reversible and occur in the context of already naturally low water levels during a drought.</p> <p>Overall, this option has been assessed as having a moderate positive effect on this objective.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                             | ++                                                                                    |
| Material assets and resource use | 3.1 To minimise resource use and waste production.                                                                                                           | Negative    | Small                                                   | High                | Short-term  | Temporary  | Low                 | Low                             | <p><b>Effects of Construction</b><br/>The implementation of this option will not require any construction and therefore will not require the use of raw materials. A neutral effect has been assessed against this objective.</p> <p><b>Effects of Operation</b><br/>The option involve modifications to compensation flow only and no changes to energy use, generated waste or sustainable design are envisaged. The option will make use of existing infrastructure resulting in a minor positive effect on this objective.</p>                                                                                                                                                                                                                                                          | 0                                                                                     |
|                                  |                                                                                                                                                              | Positive    | Small                                                   | High                | Short-term  | Temporary  | Low                 | Low                             | <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | +                                                                                     |
| Water                            | 4.1 To protect and enhance the quality of surface, groundwater, estuarine and coastal water and help achieve the objectives of the Water Framework Directive | Negative    | Small                                                   | Medium              | Medium-term | Temporary  | Low                 | Medium                          | <p><b>Effects of Construction</b><br/>The option requires no construction and therefore it is not expected to result in any effects on water quality.</p> <p><b>Effects of Operation</b><br/>The operation of this option would result in a moderate reduction of flows in Afon Taf by between 10-20%. Water quality monitoring data was limited for Reach 1 and 3, with no suitable data available in Reach 2. The reported water quality is consistent with 'High' WFD status in Reaches 1 and 3, where data are available, and no seasonality is apparent. The EAR concluded minor risks to water quality in Reach 1, with negligible risks in Reach 2 and 3. Overall, a minor negative effect is assessed against this objective with uncertainty due to limited data availability.</p> | -/?                                                                                   |
|                                  |                                                                                                                                                              | Positive    | N/A                                                     | N/A                 | N/A         | N/A        | N/A                 | N/A                             | <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>A very limited water quality data set is available for the period from 2015-2024.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | N/A                                                                                   |

| SEA Topics and Objectives |                                                                                                                                      |             | Assessment of option                                    |                     |             |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                |  |
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| SEA Topic                 | SEA Objective                                                                                                                        | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration    | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Residual significance of effect (likely to remain after reasonable mitigation) |  |
| Water                     | 4.2 To avoid negative impact on surface and groundwater levels and flows, including when this impacts on habitats and/or navigation. | Negative    | Small                                                   | High                | Medium-term | Temporary  | Medium              | Medium                          | <b>Effects of Construction</b><br>The option requires no construction and therefore will not lead to a change to WFD status, therefore a neutral effect is expected.<br><br><b>Effects of Operation</b><br>The hydrological impacts associated with an up to 20% reduction in compensation release from Llwyn Onn Reservoir will result in moderate reductions of up to 20% in river flows in Reach 1 at any time of year the drought permit is implemented. In Reach 2, moderate reductions of up to 10% are anticipated during summer, with minor reductions during the autumn/winter period. In Reach 3, minor reductions of up to 10% during summer are anticipated, with negligible reductions during the autumn/winter period. The resultant risk to river habitat as a result of the reduced flows ranges from negligible to moderate. Moderate impacts are anticipated in Reach 1 as a result of changes in flow hydraulics and potential for changes in localised connectivity. Reach 2 experiences negligible to minor risks to river habitats.<br><br>The impact on Llwyn Onn Reservoir would be a marginal increase in levels / storage, relative to the position without the drought permit, due to the reduced compensation outflow which would help to conserve water in storage. The length of time of shoreline exposure would be slightly shorter, compared to the baseline drought scenario, as the reservoir would reach top water level slightly earlier during the winter refill period. This would be considered as a minor positive impact. | --                                                                             |  |
|                           |                                                                                                                                      | Positive    | Small                                                   | High                | Short-term  | Temporary  | Low                 | Medium                          | Overall, the effect of this option on surface water levels and flows and subsequent impacts on habitats is assessed as moderate negative and minor positive, in operation.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None.<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | +                                                                              |  |
|                           | 4.3 To increase water efficiency and increase resilience of Public Water Supply (PWS) and natural systems to droughts.               | Negative    | N/A                                                     | N/A                 | N/A         | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>The option requires no construction and therefore it is not expected to result in any effects on the efficiency of water use.<br><br><b>Effects of Operation</b><br>Operation of this option is not intended to impact water use efficiency. The implementation of a drought permit will allow Welsh Water to reduce compensation flows to the Afon Taf by 3.62Ml/d, improving water resource management as storage in Llwyn Onn Reservoir can be maintained for a longer period of time, helping to ensure the maintenance of public water supplies. Therefore, this option is assessed as having a moderate positive operational effect.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | N/A                                                                            |  |
|                           |                                                                                                                                      | Positive    | Small                                                   | High                | Short-term  | Temporary  | Medium              | Medium                          | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ++                                                                             |  |
|                           |                                                                                                                                      |             |                                                         |                     |             |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                |  |
|                           |                                                                                                                                      |             |                                                         |                     |             |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                |  |

| SEA Topics and Objectives  |                                                                                                                                                                                         |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                       |                                                                                |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------------------------------------------------|---------------------|------------|------------|---------------------|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| SEA Topic                  | SEA Objective                                                                                                                                                                           | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                            | Residual significance of effect (likely to remain after reasonable mitigation) |
| Soil, geology and land use | 5.1 To contribute to sustainable use of land and protect and enhance the functionality and quality of soils, including the protection of high-grade agricultural land and geodiversity. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>The option requires no construction and therefore it is not expected to result in any effects on land use or soils.                                                                                                                                                                                                 | 0                                                                              |
|                            |                                                                                                                                                                                         | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Operation</b><br>The operation of this option is anticipated to predominantly reduce flows in Reach 1 of the Afon Taf, which will decrease the wetted width and increase exposure of bankside soils. No areas along the reach are designated as wetland or upland bogs. Overall, a neutral effect is determined against this objective. | N/A                                                                            |
| Air and Climate            | 6.1 To reduce and minimise air emissions.                                                                                                                                               | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>No construction is required to implement this option and so there is no pathway to reduce or minimise emissions as part of this option.                                                                                                                                                                             | 0                                                                              |
|                            |                                                                                                                                                                                         | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Operation</b><br>During operation this option is not expected to require a change to vehicular volumes. Despite the proximity of the Twynrobyn Road AQMA a neutral effect is expected with regards to this objective.                                                                                                                   | N/A                                                                            |
| Air and Climate            | 6.2 To reduce carbon emissions and to adapt                                                                                                                                             | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <b>Effects of Construction</b><br>No construction is required to implement this option, therefore a neutral effect has been assessed against this objective.                                                                                                                                                                                          | 0                                                                              |
|                            |                                                                                                                                                                                         |             |                                                         |                     |            |            |                     |                                 | <b>Effects of Operation</b><br>Operational energy requirements and associated carbon emissions have not been quantified by Welsh Water and therefore a qualitative assessment has been made based on the infrastructure required to implement this option.                                                                                            |                                                                                |
|                            |                                                                                                                                                                                         |             |                                                         |                     |            |            |                     |                                 | This option will involve a change to the compensation flow from the reservoir. Water would be treated through existing treatment works and infrastructure. Energy required for treatment and distribution would therefore be unchanged from the current operation and no additional emissions of greenhouse gases are anticipated.                    |                                                                                |
|                            |                                                                                                                                                                                         |             |                                                         |                     |            |            |                     |                                 | UKCP22 climate change scenarios anticipate longer, hotter summers and, in turn, increases in both the frequency and duration of droughts. This option would provide Welsh Water with additional capacity (3.62 Ml/d) to manage drought conditions and as such is considered to contribute towards                                                     |                                                                                |

| SEA Topics and Objectives         |                                                                                                                            |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                |
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| SEA Topic                         | SEA Objective                                                                                                              | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Residual significance of effect (likely to remain after reasonable mitigation) |
| Water and Climate                 | to future changes in climate.                                                                                              | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <p>Option would provide Llwyn Onn Reservoir with additional capacity (once filled) to manage drought conditions and as such is considered to contribute towards climate change adaptation.</p> <p>Overall, a minor positive effect has been assessed against this objective in operation.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | +                                                                              |
| Archaeology and Cultural Heritage | 7.1 To conserve and enhance historic assets/cultural heritage and their setting, including archaeological important sites. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <p><b>Effects of Construction</b><br/>This option will not require the construction of new infrastructure and as such, a neutral effect has been identified against this objective.</p> <p><b>Effects of Operation</b><br/>The operation of this option will lead to a 20% reduction in flows within Reach 1. Two notable historic assets along this stretch of the Afon Taff are the Llwyn Onn Reservoir Dam, which is itself a Grade II listed building and the Pont-y-Cafnau Viaduct, a Grade II* listed ironwork bridge over the Afon Taff. Reducing the compensation flow from the reservoir could help to preserve water levels, which in turn would help retain the setting and appearance of these designated assets, however the scale of this effect is likely to be negligible. There is the potential for reduced flows downstream to affect the settings of these assets, particularly where they experience views of the Afon Taff however any effects in this regard would be temporary and reversible and so effects would be negligible. Flows within Reach 2 and Reach 3 are both anticipated to be reduced by up to 10%. Any effects on historic assets along these reaches are considered to be negligible. Overall, this option has been assessed as having a neutral effect on this objective.</p>                                                                                                                                                                                                        | 0                                                                              |
|                                   |                                                                                                                            | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0                                                                              |
| Landscape and                     | 8.1 To conserve, protect and enhance landscape and townscape                                                               | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <p><b>Effects of Construction</b><br/>This option will not require the construction of new infrastructure. A neutral effect has been identified against this objective.</p> <p><b>Effects of Operation</b><br/>Llwyn Onn Reservoir and the Afon Taf Fawr to the confluence with the Afon Taf Fechan are within the Bannau Brycheiniog National Park. No new infrastructure is required and therefore no visual effect will result. However, flows in the Afon Taf Fawr will be reduced by 20%, which would be noticeable in an area designated for its visual landscape and with many footpaths along the river. Any effect would be short-term and temporary for the period of implementation and the watercourse would already be experiencing low flows as a result of natural drought conditions. A minor negative effect has been assessed on the visual amenity within the National Park boundary.</p> <p>The water level in the Llwyn Onn Reservoir would be maintained over a longer period than without the operation of the option, which would help maintain the aesthetic value of the reservoir, however, due to the temporary nature of these results, the effects is considered negligible.</p> <p>The Afon Taf intersects the Merthyr Tydfil Historic Landscape designated for its historic industrial heritage. Whilst there may be some visual change of the watercourse caused by the reduction of compensation flow by 20%, it is not expected to have an impact on these designations in excess of the</p> | -                                                                              |



| SEA Topics and Objectives |                                                  |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                |
|---------------------------|--------------------------------------------------|-------------|---------------------------------------------------------|---------------------|------------|------------|---------------------|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| SEA Topic                 | SEA Objective                                    | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Residual significance of effect (likely to remain after reasonable mitigation) |
| Visual Amenity            | land and townscape character and visual amenity. | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <p>changes caused by an ongoing drought. The designation is not water dependant.</p> <p>Downstream of the confluence of the Taf Fechan and Taff Fawr flows are expected to be up to 10% lower than those from the existing compensation release. However, considering this option would be implemented under drought conditions it is expected that there will be a negligible effect on this objective.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p> | 0                                                                              |

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                           |        |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------|
| Option Name:        | 8121-2 Pontsticill                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Water Resource Zone Name: | SEWCUS |
| Option Description: | <p>The drought permit involves a proposed reduction in the statutory compensation release from Pontsticill Reservoir to the Taf Fechan by 20% (3.8Ml/d), from 19.1Ml/d to 15.3Ml/d. This will conserve the longevity of reservoir storage for use in direct supply during a drought and improve the probability of reservoir winter refill. The proposed scheme is to reduce the compensation flow normally required from the reservoir in order to conserve reservoir storage and help ensure there is enough resource to maintain essential public water supplies throughout a severe drought without the need for more extreme customer side measures. The scheme will also help improve the prospect of reservoir recovery over the winter. The drought permit would only be applied for during the period July to December, inclusive.</p> |                           |        |

| SEA Topics and Objectives     |                                                                                                                                                                                                                                                                                                       |             | Assessment of option                                    |                     |             |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |
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| SEA Topic                     | SEA Objective                                                                                                                                                                                                                                                                                         | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration    | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Residual significance of effect (likely to remain after reasonable mitigation)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |     |
| Biodiversity, flora and fauna | 1.1 To protect and enhance designated sites and their qualifying features, biodiversity, priority habitats and species ecological functions, capacity and habitat connectivity and to protect and enhance natural capital and the biodiversity and ecosystem services that contribute to the economy. | Negative    | Small                                                   | Medium              | Medium-term | Temporary  | Medium              | High                            | <p><b>Effects of Construction</b></p> <p>There are no construction aspects to this option and therefore no effect is expected with regards to this option.</p> <p><b>Effects of Operation</b></p> <p>The hydrological impacts as a result of implementing this drought permit are as follows:</p> <ul style="list-style-type: none"><li>• Reach 1 - Moderate reductions of up to 20% in river flows throughout the reach at any time of year that the drought permit is implemented.</li><li>• Reach 2 - Moderate reductions of up to 10% in river flows throughout the reach during the summer period. With minor reductions during the autumn/winter period.</li><li>• Reach 3 - Minor reductions of up to 10% in river flows throughout the reach during the summer period. With negligible reductions during the autumn/winter period.</li></ul> <p>The SSSI Cwm Taf Fechan Woodlands is adjacent to the watercourse in reach 1 of the option. This SSSI contains areas of Ancient Woodland. The lower section of this designated site is also a Local Nature Reserve, most aspects of this SSSI are not assessed to be highly water dependant with changes from the reduction of compensation flow of 20% expected to have limited effect on wetted widths, splash zone and humidity within the river reach. Impacts of the drought permit on the SSSI are assessed as negligible. Several priority habitats have been identified on or within 500m of the impacted reaches, which are moderately sensitive to hydrological changes. The EAR concluded minor impacts to notable bryophyte species in Reach 1.</p> <p>Moderate impacts were concluded for several fish species as a result of drought permit implementation, including Atlantic salmon and Brown/sea trout in Reach 1 and 2, in addition to Bullhead in Reach 1 only. These impacts are due to delays and potential cessation of adult upstream sea trout migration due to reduced flow, delays and potential cessation of smolt migration due to reduced flows, reduced water quality, and a reduction in spawning and juvenile survival due to habitat loss.</p> | ---                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |     |
|                               |                                                                                                                                                                                                                                                                                                       | Positive    | N/A                                                     | N/A                 | N/A         | N/A        | N/A                 | N/A                             | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>The Severn Estuary Ramsar is located 42km from the option, however, is in hydrological connectivity to the Afon Taf. The HRA screened this site in due to potential impacts on migratory fish (specifically Atlantic salmon). Available data suggest that the Afon Taf Fawr within the hydrological zone of influence (Reaches 1-3) constitutes an essential migratory pathway for Atlantic salmon with the potential to provide important spawning and nursery habitat. The HRA concluded that the drought permit could have a likely significant effect (LSE) on the integrity of the European site. This assessment was made on a precautionary basis until the scale and likelihood of an adverse effect can be confirmed through further data collection.</p> <p>A major negative effect is therefore assessed against this objective as LSEs cannot be ruled out for the qualifying features of the Severn Estuary Ramsar. This assessment is uncertain until further data are collected.</p> <p><b>Mitigation</b></p> <p>Several mitigation measures have been proposed to reduce the potential impacts on fish species during permit operation. These approaches include actions to deter predators and poaching, temporary reversion to the licensed compensation flow, aeration deployment and fish rescue (catch and transfer to fish refugia). Further information on potential mitigation actions is provided in Appendix C to the Llwyn Onn EAR. Further mitigation is outlined in the Stage 2 Appropriate Assessment in the HRA.</p> <p><b>Assumptions</b></p> <p>None</p> <p><b>Uncertainty</b></p> <p>Further data are required to better understand the distribution of habitats in the reach to improve certainty on the scale and likelihood of impact.</p> | N/A |

| SEA Topics and Objectives   |                                                                                                                                     |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                |
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| SEA Topic                   | SEA Objective                                                                                                                       | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Residual significance of effect (likely to remain after reasonable mitigation) |
|                             | 1.2 To avoid and, where required, manage the introduction or spread of invasive and non-native species (INNS).                      | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>There are no construction requirements for this option that would result in an effect with regard to the spread of INNS.<br><br><b>Effects of Operation</b><br>The implementation of this drought permit is not anticipated to increase the spread of Invasive non-native species. No INNS features that are susceptible to drought permit impacts have been identified, therefore INNS have not been considered further.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | N/A                                                                            |
|                             |                                                                                                                                     | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | N/A                                                                            |
| Population and human health | 2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing). | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <b>Effects of Construction</b><br>No construction is required for the implementation of this option and therefore no effects are anticipated on water quality or clean drinking water supply. There would be no direct disturbance to local residents, therefore a neutral effect is identified.<br><br><b>Effects of Operation</b><br>The operation of this option will conserve 3.8Ml/d for SEWCUS WRZ. This will help to maintain essential public water supplies during drought conditions, and therefore help maintain public health and well-being. The option requires only a change in compensation flow and requires no additional materials or assets in order to operate, therefore nearby communities will not experience any nuisance from additional processes or vehicle movements.<br><br>A National Cycle Network route runs adjacent to Reach 2 and 3 along with several PRoW. There is potential for visual amenity to be impacted during operation of the drought permit, although this will be in the context of already low river levels due to natural drought conditions and therefore the impact is considered to be negligible.                                                                                                                                                                                 | 0                                                                              |
|                             |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Medium              | High                            | Overall, this has been assessed as having a moderate positive effect on this objective.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | ++                                                                             |
|                             | 2.2 To protect and enhance the economic                                                                                             | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>No construction is required for the implementation of this option therefore there will be no effect on the availability of water for local people and visitors to maintain economic activity in times of drought. Further, it is not anticipated that the option would generate any economic benefits (e.g. job creation or supply chain investment).<br><br><b>Effects of Operation</b><br>The operation of this option has the potential to conserve a total of 3.8Ml/d, helping to meet the needs of homes, businesses and visitors to this area during periods of drought, supporting the local and regional economy. The WRZ does not exhibit the same water demand patterns as other water resource zones due to the seasonal tourist influx to the National Park. Within the definitions of the significance thresholds, this is considered to be a moderate positive effect.<br><br>Whilst there are some local PRoW, there are no national trails or country parks within 500m of the option. Pontsticill Reservoir and part of the Taf Fechan (Reach 1) are located within Bannau Brycheiniog National Park. There are several PRoW along the valley sides as well as a national cycle route. The landscape and visual amenity surrounding these assets is varied and appealing and comprises | 0                                                                              |

| SEA Topics and Objectives        |                                                                                                                                                              |             | Assessment of option                                    |                     |             |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                       |
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| SEA Topic                        | SEA Objective                                                                                                                                                | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration    | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Residual significance of effect <i>(likely to remain after reasonable mitigation)</i> |
|                                  | and social needs of the local community.                                                                                                                     | Positive    | Small                                                   | High                | Short-term  | Temporary  | Medium              | High                            | <p>important recreational and tourism assets for activities such as hiking and cycling. The reduction in water levels during drought could temporarily affect the visual amenity in these areas as well as other recreational activities such as fishing, however, impacts will be short-term and reversible and occur in the context of already naturally low water levels during a drought.</p> <p>Overall, this option has been assessed as having a moderate positive effect on this objective.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ++                                                                                    |
| Material assets and resource use | 3.1 To minimise resource use and waste production.                                                                                                           | Negative    | Small                                                   | High                | Short-term  | Temporary  | Low                 | Low                             | <p><b>Effects of Construction</b><br/>The implementation of this option will not require any construction and therefore will not require the use of raw materials. A neutral effect has been assessed against this objective.</p> <p><b>Effects of Operation</b><br/>The option involve modifications to compensation flow only and no changes to energy use, generated waste or sustainable design are envisaged. The option will make use of existing infrastructure resulting in a minor positive effect on this objective.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0                                                                                     |
|                                  |                                                                                                                                                              | Positive    | Small                                                   | High                | Short-term  | Temporary  | Low                 | Low                             | <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | +                                                                                     |
| Water                            | 4.1 To protect and enhance the quality of surface, groundwater, estuarine and coastal water and help achieve the objectives of the Water Framework Directive | Negative    | Small                                                   | Medium              | Medium-term | Temporary  | Low                 | Medium                          | <p><b>Effects of Construction</b><br/>The option requires no construction and therefore it is not expected to result in any effects on water quality.</p> <p><b>Effects of Operation</b><br/>Assessment of the effect of this option in regards water quality found there to be a minor risk to reach 1 from the operation of this option. Contributing factors included the Pontsticill Water treatment works and other surface water discharge permits along reach 1 where a very low flow rate results in a minor risk from dilution reduction. Overall this option could have a minor negative impact with regard to surface water quality and WFD objectives. The operation of this option would result in a moderate reduction of flows in the Taf Fechan and Afon Taf by between 10-20%. Water quality monitoring data was limited for Reach 3, with no suitable data available in Reach 2. The reported water quality is consistent with 'High' WFD status in Reaches 1 and 3, where data are available, and no seasonality is apparent. A minor risk from dilution reduction was identified for Reach 1, doe the presence of the WwTW. The EAR concluded minor risks to water quality in Reach 1, with negligible risks in Reach 2 and 3.</p> | -/?                                                                                   |
|                                  |                                                                                                                                                              | Positive    | N/A                                                     | N/A                 | N/A         | N/A        | N/A                 | N/A                             | <p>Overall, a minor negative effect is assessed against this objective with uncertainty due to limited data availability.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>A very limited water quality data set is available for the period from 2015-2024.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | N/A                                                                                   |

| SEA Topics and Objectives |                                                                                                                                      |             | Assessment of option                                    |                     |             |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                |  |
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| SEA Topic                 | SEA Objective                                                                                                                        | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration    | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Residual significance of effect (likely to remain after reasonable mitigation) |  |
| Water                     | 4.2 To avoid negative impact on surface and groundwater levels and flows, including when this impacts on habitats and/or navigation. | Negative    | Small                                                   | High                | Medium-term | Temporary  | Medium              | Medium                          | <b>Effects of Construction</b><br>No construction is required as part of the implementation of this option and so no effect is expected in regards this objective.<br><br><b>Effects of Operation</b><br>The hydrological impacts associated with an up to 20% reduction in compensation release from Pontsticill Reservoir will result in moderate reductions of up to 20% in river flows in Reach 1 at any time of year the drought permit is implemented. In Reach 2, moderate reductions of up to 10% are anticipated during summer, with minor reductions during the autumn/winter period. In Reach 3, minor reductions of up to 10% during summer are anticipated, with negligible reductions during the autumn/winter period. The resultant risk to river habitat as a result of the reduced flows is moderate which individual effects ranging from negligible to minor. Minor impacts are anticipated in Reach 1 and 2 as a result of changes in flow hydraulics, potential for changes in localised connectivity and minor risks to change in variability in usable habitat. Reach 1 also experiences minor risks to changes in sediment dynamics. Reach 3 experiences negligible risks to river habitats.<br><br>The impact on Pontsticill Reservoir would be a marginal increase in levels / storage, relative to the position without the drought permit, due to the reduced compensation outflow which would help to conserve water in storage. The length of time of shoreline exposure would be slightly shorter, compared to the baseline drought scenario, as the reservoir would reach top water level slightly earlier during the winter refill period. This would be considered as a minor positive impact.<br><br>Overall, the effect of this option on surface water levels and flows and subsequent impacts on habitats during operation is assessed as moderate negative and minor positive. | --                                                                             |  |
|                           |                                                                                                                                      | Positive    | Small                                                   | High                | Short-term  | Temporary  | Low                 | Medium                          | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | +                                                                              |  |
|                           | 4.3 To increase water efficiency and increase resilience of Public Water Supply (PWS) and natural systems to droughts.               | Negative    | N/A                                                     | N/A                 | N/A         | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>No construction is required to implement this option as this uses existing infrastructure and so there are no effects with regards to efficiency or maintenance of supply.<br><br><b>Effects of Operation</b><br>During operation of this option, a reduction of 20% to the compensation flow to the Taff Fechan will result in 3.8M/d of water being stored between July and December and made available for use, helping to ensure the maintenance of public water supplies. Operation will not have any effect on the efficiency of water use.<br><br>Operation of this option is not intended to impact water use efficiency. The implementation of a drought permit will allow Welsh Water to reduce compensation flows to the Taf Fechan and Afon Taf by 3.8M/d, improving water resource management as storage in Pontsticill Reservoir can be maintained for a longer period of time, helping to ensure the maintenance of public water supplies. Therefore, this option is assessed as having an overall moderate positive effect during operation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | N/A                                                                            |  |
|                           |                                                                                                                                      | Positive    | Small                                                   | High                | Short-term  | Temporary  | Medium              | Medium                          | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ++                                                                             |  |

| SEA Topics and Objectives  |                                                                                                                                                                                         |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                |  |
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| SEA Topic                  | SEA Objective                                                                                                                                                                           | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Residual significance of effect (likely to remain after reasonable mitigation) |  |
| Soil, geology and land use | 5.1 To contribute to sustainable use of land and protect and enhance the functionality and quality of soils, including the protection of high-grade agricultural land and geodiversity. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>No construction is required to implement this option and so there are no expected impacts to soils, geology or land use.<br><br><b>Effects of Operation</b><br>No aspect of the operation of this option is expected to have an impact on the soils, geology or land use in the vicinity of Pontsticill Reservoir or the Taf Fechan and reaches further downstream. No areas along the reach have been identified specifically for being wetland or upland bogs and reductions in flow could reduce the erosion of riparian land. The EAR concluded minor risks to sediment dynamics as a result of reduced flows in Reach 1, however these would be very small scale and any effect would be reduced to to influence from the season of operation.<br><br>Overall operation is expected to have a neutral effect on this objective.                                                                                                                                                                                                                        | 0                                                                              |  |
|                            |                                                                                                                                                                                         | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | N/A                                                                            |  |
| Air and Climate            | 6.1 To reduce and minimise air emissions.                                                                                                                                               | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>No construction is required to implement this option and so there is no pathway to reduce or minimise emissions as part of this option.<br><br><b>Effects of Operation</b><br>During operation this option is not expected to require a change to the number of vehicles operating along the reach. Despite the proximity of the Twynyrodyn Road AQMA a neutral effect is expected with regards to this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0                                                                              |  |
|                            |                                                                                                                                                                                         | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | N/A                                                                            |  |
| Air and Climate            | 6.2 To reduce carbon emissions and to adapt                                                                                                                                             | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <b>Effects of Construction</b><br>No construction is required to implement this option and so there is no pathway to reduce or minimise emissions as part of this option.<br><br><b>Effects of Operation</b><br>Operational energy requirements and associated carbon emissions have not been quantified by Welsh Water and therefore a qualitative assessment has been made based on the infrastructure required to implement this option.<br><br>This option will involve a change to the compensation flow from the reservoir. Water would be treated through existing treatment works and infrastructure. Energy required for treatment and distribution would therefore be unchanged from the current operation and no additional emissions of greenhouse gases are anticipated.<br><br>UKCP22 climate change scenarios anticipate longer, hotter summers and, in turn, increases in both the frequency and duration of droughts. This option would provide Welsh Water with additional capacity (3.8 Ml/d) to manage drought conditions and as such is considered to contribute towards | 0                                                                              |  |

| SEA Topics and Objectives         |                                                                                                                            |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                |
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| SEA Topic                         | SEA Objective                                                                                                              | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Residual significance of effect (likely to remain after reasonable mitigation) |
| Air and Climate                   | to future changes in climate.                                                                                              | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | climate change adaptation.<br><br>Overall, a minor positive effect has been assessed against this objective in operation.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | +                                                                              |
| Archaeology and Cultural Heritage | 7.1 To conserve and enhance historic assets/cultural heritage and their setting, including archaeological important sites. | Negative    | Small                                                   | Low                 | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>This option will not require the construction of new infrastructure and as such, a neutral effect has been identified against this objective.<br><b>Effects of Operation</b><br>The operation of this option will lead to a 10-20% reduction in flows along the impacted reaches. Several notable historic assets along the impacted reaches, including Gurnos Quarry Tramroad & Leat scheduled monument which is designated for its industrial heritage and is linked to the ornamental lake at Cyfarthfa Castle. It is unclear if the leat is still in use for this purpose. During drought, the operation of this option could affect the functioning of the leat, however, the impact to the scheduled monument will be temporary and already in the context of natural drought conditions. Therefore, an minor negative uncertain impact is anticipated on the historic environment.<br><br>It is unlikely that operation of the drought permit would impact the setting of any listed buildings along the watercourse as reduced flows would be in the context of already low river levels during natural drought.<br><br>There is potential for positive impacts at the reservoir itself, with the dam, valve tower, bridge and outflow on Pontsticill Reservoir designated as listed buildings. The operation of the drought option could preserve the visual amenity and setting of these assets for a longer period, relative to the position without the permit, however, given the short-term and temporary nature, a neutral effect is concluded. | -/?                                                                            |
|                                   |                                                                                                                            | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | The Afon Taf intersects the Merthyr Tydfil Historic Landscape designated for its historic industrial heritage. Whilst there may be some visual change of the watercourse caused by the reduction of compensation flow by 20%, it is not expected to have an impact on this designation in excess of the changes caused by an ongoing drought. The designation is not water dependant.<br><br>Overall, this option has been assessed as having a minor negative uncertain effect due to potential impacts on the scheduled monument and neutral positive effect on the historic assets surrounding the reservoir.<br><br><b>Mitigation</b><br>None.<br><br><b>Assumptions</b><br>None.<br><br><b>Uncertainty</b><br>It is uncertain if the leat in the Gurnos Quarry Tramroad & leat scheduled monument is still operational, however, any potential impact would be in the context of low river levels due to existing drought conditions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0                                                                              |
| Landscape and                     | 8.1 To conserve, protect and enhance landscape and townscape                                                               | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <b>Effects of Construction</b><br>This option will not require the construction of new infrastructure and therefore, a neutral effect has been identified for this objective.<br><br><b>Effects of Operation</b><br>Pontsticill Reservoir and the very upper reaches of the Afon Taf Fechan (Reach 1) are within the Bannau Brycheiniog National Park. No new infrastructure is required, however, flows in the Taf Fechan will be reduced by up to 20%, which would be noticeable in an area designated for its visual landscape and with the many footpaths along the river. Any effect would be short-term and temporary for the period of implementation and in the context of low flows during drought conditions. A resultant minor negative effect has been assessed on landscape and visual amenity within the bounds of the National Park.<br><br>The water level in the Pontsticill Reservoir would be maintained over a longer period which would help maintain the aesthetic value of the reservoir.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | -                                                                              |



| SEA Topics and Objectives |                                             |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                |
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| SEA Topic                 | SEA Objective                               | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                           | Residual significance of effect (likely to remain after reasonable mitigation) |
| Visual Amenity            | and townscape character and visual amenity. | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | The water level in the Fensham Reservoir would be maintained over a longer period which would help maintain the aesthetic value of the Reservoir within the National Park, however, is anticipated to be an overall negligible positive effect on landscape and visual amenity.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None | 0                                                                              |

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |        |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------|
| Option Name:        | 8121-3 Shon Sheffrey                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Water Resource Zone Name: | SEWCUS |
| Option Description: | The drought permit proposes to reduce the compensation release normally required from Shon Sheffrey Reservoir by 20%. That is, reduce the compensation release by 0.4MI/d from 2MI/d to not less than 1.6MI/d. The drought permit may be applied for during the period July to December, inclusive. The proposed scheme is to reduce the compensation flow normally required from the reservoir in order to conserve reservoir storage and help ensure there is enough resource to maintain essential public water supplies throughout a severe drought without the need for more extreme customer side measures. The scheme will also help improve the prospect of reservoir recovery over the winter. The scheme will require a drought permit to be granted to allow it to be implemented. |                           |        |

| SEA Topics and Objectives     |                                                                                                                                                                                                                                                                                                       | Assessment of option |                                                         |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                |
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| SEA Topic                     | SEA Objective                                                                                                                                                                                                                                                                                         | Effect Type          | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Residual significance of effect (likely to remain after reasonable mitigation) |
| Biodiversity, flora and fauna | 1.1 To protect and enhance designated sites and their qualifying features, biodiversity, priority habitats and species ecological functions, capacity and habitat connectivity and to protect and enhance natural capital and the biodiversity and ecosystem services that contribute to the economy. | Negative             | Medium                                                  | Low                 | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. Therefore no effects on biodiversity from construction would occur. A neutral effect has therefore been determined against this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | -/?                                                                            |
|                               |                                                                                                                                                                                                                                                                                                       | Positive             | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Operation</b><br>The hydrological impact of implementing the drought permit involves would result in moderate reductions of up to 20% in river flows throughout the impacted Reach 1 of the Afon Sirhywi (Shon Sheffrey Reservoir outflow to confluence with Nant y Felin). The impacts can occur at any time of year that the drought permit is implemented (July to December). The impact on river habitats range from negligible to moderate, with the greatest impacts to changes in flow velocity, channel and wetted perimeter. Minor risks to connectivity and variability in usable habitat were also assessed.<br><br>No statutory designated sites with features susceptible to drought permit impacts were identified in proximity to the option. However, the EAR concluded minor impacts on two fish species, Brown/sea trout and bullhead, as a result of reduced flows. This would reduce spawning and juvenile survival due to habitat loss and cause delays and potential cessation of adult upstream sea trout migration and smolt migration. The EAR also concluded minor impacts on fish and macroinvertebrate communities as a result of reduced flow and habitat availability. All effects are anticipated to be short-term, temporary and reversible.<br><br>Overall, a minor negative effect has been determined against this objective, with uncertainty due to data availability. | N/A                                                                            |
|                               | 1.2 To avoid and, where required, manage the introduction or spread of                                                                                                                                                                                                                                | Negative             | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>There are no construction requirements for this option that would result in an effect with regards to the spread of INNS.<br><br><b>Effects of Operation</b><br>The implementation of this drought permit is not anticipated to increase the spread of Invasive non-native species. No INNS features that are susceptible to drought permit impacts have been identified, therefore INNS have not been considered further.<br><br><b>Mitigation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | N/A                                                                            |

| SEA Topics and Objectives   |                                                                                                                                     |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                |
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| SEA Topic                   | SEA Objective                                                                                                                       | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Residual significance of effect (likely to remain after reasonable mitigation) |
|                             | Introduction or spread of invasive and non-native species (INNS).                                                                   | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | N/A                                                                            |
| Population and human health | 2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing). | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. Therefore no effects on health and wellbeing from construction would occur. A neutral effect has therefore been determined against this objective.<br><br><b>Effects of Operation</b><br>The operation of this option will provide 0.4Ml/d for the SEWCUS WRZ. This will help to maintain essential public water supplies during drought conditions, and therefore help maintain public health and well-being. The option requires only a change in compensation flow and requires no additional materials or assets in order to operate, therefore nearby communities will not experience any nuisance from additional processes or vehicle movements.                                                                                                                                                                                                                              | 0                                                                              |
|                             |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | Overall, this option has been assessed as having a minor positive effect on this objective.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | +                                                                              |
|                             | 2.2 To protect and enhance the economic and social needs of the local community.                                                    | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>No construction is required for the implementation of this option therefore there will be no effect on the availability of water for local people and visitors to maintain economic activity in times of drought. Further, it is not anticipated that the option would generate any economic benefits (e.g. job creation or supply chain investment).<br><br><b>Effects of Operation</b><br>This option will provide an additional yield of 0.4 Ml/d. This would help to meet the water supply needs of homes, businesses and visitors in the area during periods of drought, supporting the local and regional economy. Therefore, consistent with the definitions of significance used in the assessment, a minor positive effect is predicted.<br><br>Shon Sheffrey Reservoir holds stock of rainbow trout and wild brown trout. Any reduction in wetted width and depth may influence water-dependent recreational activities, such as the Tredegar Angling Club. | 0                                                                              |
|                             |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | A National Cycle Network route runs adjacent to the impacted reach. There is potential for visual amenity to be impacted during operation of the drought permit, although this will be in the context of already low river levels due to natural drought conditions and therefore the impact is considered to be negligible.<br><br>Overall, this option has been assessed as having a minor positive impact on the objective.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | +                                                                              |

| SEA Topics and Objectives        |                                                                                                                                                              |             | Assessment of option                                    |                     |             |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                |
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| SEA Topic                        | SEA Objective                                                                                                                                                | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration    | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Residual significance of effect (likely to remain after reasonable mitigation) |
| Material assets and resource use | 3.1 To minimise resource use and waste production.                                                                                                           | Negative    | Small                                                   | High                | Short-term  | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>The implementation of this option will not require any construction and therefore will not require the use of raw materials. A neutral effect has been assessed against this objective.<br><br><b>Effects of Operation</b><br>The option involves modifications to compensation flow only and no changes to energy use, generated waste or sustainable design are envisaged. The option will make use of existing infrastructure resulting in a minor positive effect on this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0                                                                              |
|                                  |                                                                                                                                                              | Positive    | Small                                                   | High                | Short-term  | Temporary  | Low                 | Low                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | +                                                                              |
| Water                            | 4.1 To protect and enhance the quality of surface, groundwater, estuarine and coastal water and help achieve the objectives of the Water Framework Directive | Negative    | Small                                                   | High                | Medium-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>The option requires no construction and therefore it is not expected to result in any effects on water quality.<br><br><b>Effects of Operation</b><br>The operation of this option would result in a moderate reduction of flows in Afon Sirhywi by up to 20%. Water quality data for the impacted reach was consistent with 'High' ecological WFD status and there was some seasonality noted, with elevated concentrations of ammonia in summer. A number of combined sewer overflows were identified which present a minor risk to water quality at times where they might be overflowing in periods of reduced flow dilution during drought permit implementation.<br><br>Overall, a minor negative effect is assessed against this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | -                                                                              |
|                                  |                                                                                                                                                              | Positive    | N/A                                                     | N/A                 | N/A         | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | N/A                                                                            |
|                                  | 4.2 To avoid negative impact on surface and groundwater levels and                                                                                           | Negative    | Small                                                   | High                | Medium-term | Temporary  | Medium              | Medium                          | <b>Effects of Construction</b><br>No construction is required as part of the implementation of this option and therefore no effect is expected in regards this objective.<br><br><b>Effects of Operation</b><br>The hydrological impact of implementing the drought permit would result in moderate reductions of up to 20% in river flows throughout the impacted Reach 1 of the Afon Sirhywi (Shon Sheffrey Reservoir outflow to confluence with Nant y Felin). The impacts can occur at any time of year that the drought permit is implemented (July to December). The impact on river habitats range from negligible to moderate, with the greatest impacts to changes in flow velocity, channel and wetted perimeter. Minor risks to connectivity and variability in usable habitat were also assessed.<br><br>The impact on Shon Sheffrey Reservoir would be a marginal increase in levels / storage, relative to the position without the drought permit, due to the reduced compensation outflow which would help to conserve water in storage. The length of time of shoreline exposure would be slightly shorter, compared to the baseline drought scenario, as the reservoir would reach top water level slightly earlier during the winter refill period. This would be | --                                                                             |

| SEA Topics and Objectives  |                                                                                                                                                                                         |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------------------------------------------------|---------------------|------------|------------|---------------------|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| SEA Topic                  | SEA Objective                                                                                                                                                                           | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Residual significance of effect (likely to remain after reasonable mitigation) |
| Water                      | flows, including when this impacts on habitats and/or navigation.                                                                                                                       | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | considered as a minor positive impact.<br><br>Overall, the effect of this option on river levels and flows and subsequent impacts on habitats is assessed as moderate negative.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                             | +                                                                              |
|                            | 4.3 To increase water efficiency and increase resilience of Public Water Supply (PWS) and natural systems to droughts.                                                                  | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>No construction is required to implement this option as this uses existing infrastructure and so there are no effects with regards to efficiency or maintenance of supply.<br><br><b>Effects of Operation</b><br>Operation of this option is not intended to impact water use efficiency. The implementation of a drought permit will allow Welsh Water to reduce compensation flows to the Afon Sirhywi by 0.4Ml/d, improving water resource management as storage in Shon Sheffrey Reservoir can be maintained for a longer period of time, helping to ensure the maintenance of public water supplies. Therefore, this option is assessed as having a minor positive operational effect.    | N/A                                                                            |
|                            |                                                                                                                                                                                         | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ++                                                                             |
| Soil, geology and land use | 5.1 To contribute to sustainable use of land and protect and enhance the functionality and quality of soils, including the protection of high-grade agricultural land and geodiversity. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>The option requires no construction and therefore it is not expected have any effects on land use or soils.<br><br><b>Effects of Operation</b><br>The operation of this option is anticipated to reduce flows in the Afon Sirhowy by 0.4Ml/d however no land or soils are required in the operation of the option, whilst reductions in flow could reduce the erosion of riparian land. There are some areas of priority habitat within the vicinity of the watercourse, but none of the areas along the reach are designated as wetland or upland bogs, or are habitats which require a hydrological link to the river. Overall, a neutral effect has been determined against this objective. | 0                                                                              |
|                            |                                                                                                                                                                                         | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0                                                                              |

| SEA Topics and Objectives |                                                                           |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                       |
|---------------------------|---------------------------------------------------------------------------|-------------|---------------------------------------------------------|---------------------|------------|------------|---------------------|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| SEA Topic                 | SEA Objective                                                             | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Residual significance of effect <i>(likely to remain after reasonable mitigation)</i> |
| Air and Climate           | 6.1 To reduce and minimise air emissions.                                 | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>No construction is required to implement this option and so there is no pathway to reduce or minimise emissions as part of this option.<br><br><b>Effects of Operation</b><br>During operation this option is not expected to require a change to the number of vehicles operating along the reach. There are no AQMAs within 500m of the reaches involved and therefore a neutral effect is expected with regards to this objective.                                                                                                                                                                                                                                                                                                                                                                    | 0                                                                                     |
|                           |                                                                           | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | N/A                                                                                   |
| Air and Climate           | 6.2 To reduce carbon emissions and to adapt to future changes in climate. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>This option will not require the construction of new infrastructure that would result in a change in use of energy and as such, a neutral effect has been identified against this objective.<br><br><b>Effects of Operation</b><br>Operational energy requirements and associated carbon emissions have not been quantified by Welsh Water and therefore a qualitative assessment has been made based on the infrastructure required to implement this option.<br><br>This option will involve a change to the compensation flow from the reservoir. Water would be treated through existing treatment works and infrastructure. Energy required for treatment and distribution would therefore be unchanged from the current operation and no additional emissions of greenhouse gases are anticipated. | 0                                                                                     |
|                           |                                                                           | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | UKCP22 climate change scenarios anticipate longer, hotter summers and, in turn, increases in both the frequency and duration of droughts. This option would provide Welsh Water with additional capacity (0.4 Ml/d) to manage drought conditions and as such is considered to contribute towards climate change adaptation.<br><br>Overall, a minor positive effect has been assessed against this objective in operation.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                            | +                                                                                     |

| SEA Topics and Objectives         |                                                                                                                            |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                       |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------|---------------------------------------------------------|---------------------|------------|------------|---------------------|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| SEA Topic                         | SEA Objective                                                                                                              | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Residual significance of effect <i>(likely to remain after reasonable mitigation)</i> |
| Archaeology and Cultural Heritage | 7.1 To conserve and enhance historic assets/cultural heritage and their setting, including archaeological important sites. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>This option will not require the construction of new infrastructure and as such, a neutral effect has been identified against this objective.<br><br><b>Effects of Operation</b><br>There are several designated heritage sites within 500m of the Afon Sirhowy. The Sirhowy Ironworks scheduled monument and Bedwellty Park conservation area are within 500m of the impacted reach, however, they both appear to be sufficiently distanced so as to not experience views of the river and thus any impacts to their setting. There are two Grade II listed buildings on the Afon Sirhowy, 'Blaen y Cwn Viaduct' and 'Former Tramroad Bridge over Sirhowy River'. Neither of these sites are dependant on the Afon Sirhowy for its designation and so no effect is expected to their setting. Any visual impacts would be short-term, temporary and in the context of naturally low river levels, and therefore are considered to be neutral. | 0                                                                                     |
|                                   |                                                                                                                            | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | N/A                                                                                   |
| Landscape and Visual Amenity      | 8.1 To conserve, protect and enhance landscape and townscape character and visual amenity.                                 | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>No construction is required for this option and effects to landscape or visual amenity can only be caused by operational changes.<br><br><b>Effects of Operation</b><br>Shon Sheffrey and the Afon Sirhywi are not situated in any designated landscapes and so operation of this option is unlikely to have any impact on landscape and visual amenity. This is assessed as a neutral effect in relation to this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0                                                                                     |
|                                   |                                                                                                                            | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0                                                                                     |



|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |        |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Option Name:        | Water Resource Zone Name:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | SEWCUS |
| Option Description: | <p>Increase the compensation release normally required from Grwyne Reservoir by 59% (2Ml/d) from 3.41Ml/d to 5.41Ml/d from August to October inclusive. This will help to support abstraction at Prioress Mills or Llantrisant.</p> <p>The proposed scheme is to re-commence releases from the Grwyne Fawr Reservoir of up to 5Ml/d, to support downstream abstractions at the Prioress Mill or Llantrisant Pumping Stations, downstream on the River Usk, to support provision of essential public water supplies through the drought (subject to 48 hours delay between commencement of the release and its abstraction downstream). The scheme will increase river flow to Prioress Mill Pumping Station and allow abstraction that would otherwise be restricted by licence conditions during periods of low river flow. The drought permit may be implemented during the period August to October, inclusive.</p> |        |

| SEA Topics and Objectives     |                                                                                                                                                                                                                                                                                                       |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                |
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| SEA Topic                     | SEA Objective                                                                                                                                                                                                                                                                                         | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Residual significance of effect (likely to remain after reasonable mitigation) |
| Biodiversity, flora and fauna | 1.1 To protect and enhance designated sites and their qualifying features, biodiversity, priority habitats and species ecological functions, capacity and habitat connectivity and to protect and enhance natural capital and the biodiversity and ecosystem services that contribute to the economy. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <b>Effects of Construction</b><br>As there is no construction associated with this option, there are no expected effects in relation to this objective.<br><br><b>Effects of Operation</b><br>The re-commencement of releases from Grwyne Fawr Reservoir is anticipated to have major hydrological impacts in the Afon Grwyne Fawr (Reach 1) as a result of an up to 59% increase in river flows throughout the reach, at any time of year the drought permit is implemented (August to October, inclusive). Minor impacts, constituting a 12% increase in river flows, are expected further downstream in Reach 2 (Afon Grywne). Using conclusions from a previous study regarding the flow constraints on the Grwyne Fawr Reservoir regulation releases, the EAR concluded no additional adverse impacts to river habitats as a result of the additional 2Ml/d release.<br><br>Approximately 3km downstream from the reservoir, the Afon Grwyne becomes part of The River Usk/Afon Wysg SAC and River Usk (tributaries) SSSI, for the length of the remaining impacted reaches. Despite the major hydrological impact in Reach 1, the flow changes may result in positive increases in wetted width, depth and flow velocities for the duration of the drought permit, therefore impacts on fish species (e.g. Atlantic salmon and bullhead) for which the SAC and SSSI are designated, would be negligible.<br><br>The EAR identified several areas of priority habitat and designated and notable species within and in proximity to the impacted reaches, however, it is not expected that increasing the compensation flow from the reservoir will have a negative effect on these. Conversely, the increases in flow will have positive impacts. For example, additional flow may aid in salmonid migration over barriers in the upper reaches and provide vital cool water during drought conditions as well as positive impacts on otter, such as increased efficiency in predation. The EAR concluded negligible effects overall for all environmental features.<br><br>Overall, the SEA has assessed a neutral negative and minor positive effect, due to potential for positive impacts on qualifying features of the SAC and SSSI during drought conditions. | 0                                                                              |
|                               |                                                                                                                                                                                                                                                                                                       | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <b>Mitigation</b><br>The environmental features assessment concludes that mitigation is not required for this drought permit.<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | +                                                                              |
|                               | 1.2 To avoid and, where required, manage the introduction or spread of                                                                                                                                                                                                                                | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>There are no construction requirements for this option that would result in an effect with regard to the spread of INNS<br><br><b>Effects of Operation</b><br>Invasive species can use the flow of the watercourse for dispersal. Operation of this option would increase flows within Reach 1 by up to 59%. The EAR identified no INNS features that are sensitive or susceptible to drought permit impacts within the impacted reaches. Himalayan Balsam was present in Reach 2, however the increase in flows will not have any effect on the spread of this species and therefore this feature was not considered further.<br><br>Overall, a neutral negative effect is assessed against this objective                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                                                                              |

| SEA Topics and Objectives   |                                                                                                                                     |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                |
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| SEA Topic                   | SEA Objective                                                                                                                       | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Residual significance of effect (likely to remain after reasonable mitigation) |
|                             | Introduction or spread of invasive and non-native species (INNS).                                                                   | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | Overall, a neutral-negative effect is assessed against this objective.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | N/A                                                                            |
| Population and human health | 2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing). | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>As there is no construction associated with this option, there are no expected health or wellbeing effects in relation to this objective.<br><br><b>Effects of Operation</b><br>This option will allow an increase in compensation flow of 2Ml/d. This would help to ensure the continuity of the Public Water Supply in the SEWCUS WRZ, where otherwise drought could be a threat. Continued supply levels help to support good public health and wellbeing. The option requires only a change in compensation flow and require no additional materials or assets in order to operate and so this is not likely to affect the affordability of clean drinking water. Additionally no further processes are required to support this option and so nearby communities will not experience any nuisance from industrial processes or vehicle movements.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | N/A                                                                            |
|                             |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Medium              | Medium                          | Overall, the quantity of water made available to support the continuity of the Public Water Supply is expected to have a moderate positive effect.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ++                                                                             |
|                             | 2.2 To protect and enhance the economic                                                                                             | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>No construction is required for the implementation of this option, therefore, there will be no effect on the availability of water for local people and visitors to maintain economic activity in times of drought. Furthermore, it is not anticipated that the option would generate any economic benefits (e.g. job creation or supply chain investment).<br><br><b>Effects of Operation</b><br>This option will enable an increase in compensation flow of 2Ml/d. This would help to meet the water supply needs of homes, businesses and visitors in the area during periods of drought, supporting the local and regional economy. The WRZ does not exhibit the same water demand patterns as other water resource zones due to the seasonal tourist influx to the National Park. Within the definitions of significance thresholds, this is considered to be a moderate positive effect.<br><br>There may be positive impacts on recreation as flows in the river will be increased during times of drought, this may have positive effects on fisheries (e.g Grwyne Fawr and River Usk) and other watersports (e.g. canoeing). Whilst there are some local PRoW adjacent to the Afon Grwyne Fawr, there are no national trails or country parks within 500m of the option. The proposed option is within the Bannau Brycheiniog National Park, which is a local | N/A                                                                            |

| SEA Topics and Objectives        |                                                                                                                                                              |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                       |
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| SEA Topic                        | SEA Objective                                                                                                                                                | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Residual significance of effect <i>(likely to remain after reasonable mitigation)</i> |
|                                  | and social needs of the local community.                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Medium              | Medium                          | <p>attraction helping improve local economic activity especially through outdoor pursuits. The drought option may have positive effects on amenity and enjoyment of the national park as a result of increased flows during drought.</p> <p>Overall, this option has been assessed as having a moderate positive effect on this objective.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ++                                                                                    |
| Material assets and resource use | 3.1 To minimise resource use and waste production.                                                                                                           | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Effects of Construction</b><br/>The implementation of this option will not require any construction and therefore will not require the use of raw materials. A neutral effect has therefore been assessed against this objective.</p> <p><b>Effects of Operation</b><br/>The option involves modifications to compensation flow only and no changes to energy use, generated waste or sustainable design are envisaged. The option will make use of existing infrastructure resulting in a minor positive effect on this objective.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0                                                                                     |
|                                  |                                                                                                                                                              | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | +                                                                                     |
| Water                            | 4.1 To protect and enhance the quality of surface, groundwater, estuarine and coastal water and help achieve the objectives of the Water Framework Directive | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <p><b>Effects of Construction</b><br/>The option requires no construction and therefore is not expected to result in effects on water quality.</p> <p><b>Effects of Operation</b><br/>The operation of this option involves recommencement of the normal compensation release from Grwyne Fawr Reservoir to support abstraction downstream at Prioress Mill or Llantrisant. This would result in a major increase of flows in Afon Grwyne Fawr by up to 59%. Water quality data for the impacted reaches were consistent with 'High' ecological WFD status with no apparent seasonality for dissolved oxygen or ammonia. Review of the discharge permit register identified two permits, with numeric conditions, that discharge into Reach 2 (Afon Grwyne). Neither has permit conditions that relate to sanitary water quality and both are for very low flow rates. Also noting the increase in dilution associated with the drought permit, these water quality pressures are considered to have negligible impact in conjunction with drought permit operation. No permits were identified in Reach 1. Overall, the EAR concluded negligible risks to water quality as a result of the drought option.</p> | 0                                                                                     |
|                                  |                                                                                                                                                              | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <p>Overall this option is anticipated to have a neutral effect on this objective.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0                                                                                     |

| SEA Topics and Objectives |                                                                                                                                      |                                                                                                    | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |   |
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| SEA Topic                 | SEA Objective                                                                                                                        | Effect Type                                                                                        | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Residual significance of effect (likely to remain after reasonable mitigation)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   |
| Water                     | 4.2 To avoid negative impact on surface and groundwater levels and flows, including when this impacts on habitats and/or navigation. | Negative                                                                                           | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>The option requires no construction and therefore it is not expected to result in effects on surface water flows.<br><br><b>Effects of Operation</b><br>The re-commencement of releases from Grwyne Fawr Reservoir is anticipated to have major hydrological impacts in the Afon Grwyne Fawr (Reach 1) as a result of an up to 59% increase in river flows throughout the reach, at any time of year the drought permit is implemented (August to October, inclusive). Minor impacts, constituting a 12% increase in river flows, are expected further downstream in Reach 2 (Afon Grywne). Using conclusions from a previous study regarding the flow constraints on the Grwyne Fawr Reservoir regulation releases, the EAR concluded no additional adverse impacts to river habitats as a result of the additional 2MI/d release. A minor positive effect has been assessed as a result of increasing flows downstream of the reservoir during a drought.<br><br>The impact on Grwyne Fawr Reservoir would be a reduction in levels / storage, relative to the position without the drought permit, due to the additional releases of 2.0 MI/d above the current voluntary compensation release rate of 3.41 MI/d. The length of time of shoreline exposure would be longer, compared to the baseline drought scenario, as the reservoir would draw down during the period of implementation of the drought permit. Over a 3-month period from August to October, under the drought permit an additional 184 MI could be released from the reservoir, however modelled data for the period 1961-2022 indicates that the maximum drawdown under the drought permit would occur in 2003 and would lower the minimum volume in the reservoir by around 164 MI. This is a reduction in minimum volume of around 12% relative to the baseline and corresponds to a reduction in water level of around 1.7m. A minor negative effect has therefore been assessed. | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |
|                           |                                                                                                                                      | Positive                                                                                           | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | +                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |
|                           | 4.3 To increase water efficiency and increase resilience of Public Water Supply (PWS) and natural systems to droughts.               | Negative                                                                                           | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>No construction is required to implement this option as this uses existing infrastructure and so there are no effects with regards to efficiency or maintenance of supply.<br><br><b>Effects of Operation</b><br>Operation of this option is not intended to impact water use efficiency. The implementation of a drought permit will allow Welsh Water to reinstate compensation releases to the Afon Grwyne Fawr to enable abstraction downstream at Prioress Mill or Llantrisant. This will improve water resource management during a drought and ensure the maintenance of public water supplies. Therefore, this option is assessed as having a minor positive operational effect.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |
|                           |                                                                                                                                      | Positive                                                                                           | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | +                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |
|                           | Soil, geology                                                                                                                        | 5.1 To contribute to sustainable use of land and protect and enhance the functionality and quality | Negative                                                | Small               | High       | Short-term | Temporary           | Low                             | Low                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Effects of Construction</b><br>The option requires no construction and therefore it is not expected to result in any effects on land use or soils.<br><br><b>Effects of Operation</b><br>The operation of this option is anticipated to increase flows in Reach 1 of Afon Grwyne Fawr by 59%, however, no land or soils are required in the operation of the option. Increases in flow could increase the erosion of riparian land, however, this effect is expected to be negligible. Whilst there are some areas of Priority habitat along the reaches; mostly Lowland Dry acidic grassland, it is unlikely that changes in river flow during the short-term operation will threaten to alter these habitats, especially during ongoing drought. Overall, a neutral effect is determined against this objective. | 0 |
|                           |                                                                                                                                      |                                                                                                    |                                                         |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |   |

| SEA Topics and Objectives |                                                                                                                |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                       |
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| SEA Topic                 | SEA Objective                                                                                                  | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Residual significance of effect <i>(likely to remain after reasonable mitigation)</i> |
| Land and land use         | Functionality and quality of soils, including the protection of high-grade agricultural land and geodiversity. | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0                                                                                     |
| Air and Climate           | 6.1 To reduce and minimise air emissions.                                                                      | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>No construction is required to implement this option and so there is no pathway to reduce or minimise emissions as part of this option.<br><br><b>Effects of Operation</b><br>During operation, this option is not expected to require a change to the number of vehicles operating along the reach. There are no AQMAS within 500m of the reaches involved and therefore a neutral effect is expected with regards to this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0                                                                                     |
|                           |                                                                                                                | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | N/A                                                                                   |
| Air and Climate           | 6.2 To reduce carbon emissions and to adapt to future changes in climate.                                      | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>No construction is required to implement this option and so there is no pathway to reduce or minimise emissions as part of this option.<br><br><b>Effects of Operation</b><br>Operational energy requirements and associated carbon emissions have not been quantified by Welsh Water and therefore a qualitative assessment has been made based on the infrastructure required to implement this option.<br><br>This option will involve re-commencing compensation releases from the reservoir to support downstream abstractions. DCWW have capability via an existing turbine at Grwyne Fawr to make releases from the reservoir, therefore there will not be any increase in energy usage. The extra release from the reservoir is anticipated to increase hydropower generation at the site which is considered to be a positive effect.<br><br>UKCP22 climate change scenarios anticipate longer, hotter summers and, in turn, increases in both the frequency and duration of droughts. This option would provide Welsh Water with additional capacity (2 Ml/d) to manage drought conditions and as such is considered to contribute towards climate change adaptation.<br><br>Overall, a minor positive effect has been assessed against this objective in operation. | 0                                                                                     |
|                           |                                                                                                                | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>Uncertainty over how the drought permit operational energy use will change compared to baseline.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | +                                                                                     |

| SEA Topics and Objectives         |                                                                                                                            |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                |
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| SEA Topic                         | SEA Objective                                                                                                              | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Residual significance of effect (likely to remain after reasonable mitigation) |
| Archaeology and Cultural Heritage | 7.1 To conserve and enhance historic assets/cultural heritage and their setting, including archaeological important sites. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>This option will not require the construction of new infrastructure and as such, a neutral effect has been identified against this objective.                                                                                                                                                                                                                                                                                                                                                                                                          | 0                                                                              |
|                                   |                                                                                                                            | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Operation</b><br>Whilst there are several listed buildings within 500m of Reach 1 and 2 of Grwyne Fawr and Afon Grwyne, including five Grade II listed bridges which cross the watercourse; it is not anticipated that increased flows would negatively impact these assets or their settings. There are no scheduled monuments, conservation areas or world heritage sites within 500m of the watercourse. Overall, a neutral effect has been assessed against this objective.                                                                                            | 0                                                                              |
| Landscape and Visual Amenity      | 8.1 To conserve, protect and enhance landscape and townscape character and visual amenity.                                 | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <b>Effects of Construction</b><br>This option will not require the construction of new infrastructure and as such, a neutral effect has been identified against this objective.                                                                                                                                                                                                                                                                                                                                                                                                          | -                                                                              |
|                                   |                                                                                                                            | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <b>Effects of Operation</b><br>This option is entirely within the Bannau Brycheiniog National Park. Increases in river flow of up to 59% in Afon Grwyne Fawr as a result of the drought option may positively impact the visual amenity of the area, particularly during times of drought. This has been assessed as a minor positive effect.<br><br>The water level in the Grwyne Fawr Reservoir would be reduced over a longer period which would negatively impact the aesthetic value of the reservoir, within the National Park. This has been assessed as a minor negative effect. | +                                                                              |

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                           |          |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------|
| Option Name:        | 8201-1(ii) Crai                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Water Resource Zone Name: | Twyl CUS |
| Option Description: | <p>The proposed scheme is to reduce the compensation flow normally required from the reservoir by 20% (1.36Ml/d), from 6.82Mld to 5.46Ml/d, in order to conserve reservoir storage and help ensure there is enough resource to maintain essential public water supplies throughout a severe drought without the need for more extreme customer side measures. The scheme will also help improve the prospect of reservoir recovery over the winter. The drought order could be applied for during the period June to October, inclusive.</p> <p>No additional infrastructure would be required to enable this option to be implemented.</p> |                           |          |

| SEA Topics and Objectives     |                                                                                                                                                                                                                                                                                                       | Assessment of option |                                                         |                     |             |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                |
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| SEA Topic                     | SEA Objective                                                                                                                                                                                                                                                                                         | Effect Type          | Scale of effect – geographical &/or population affected | Certainty of effect | Duration    | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Residual significance of effect (likely to remain after reasonable mitigation) |
| Biodiversity, flora and fauna | 1.1 To protect and enhance designated sites and their qualifying features, biodiversity, priority habitats and species ecological functions, capacity and habitat connectivity and to protect and enhance natural capital and the biodiversity and ecosystem services that contribute to the economy. | Negative             | Small                                                   | Medium              | Medium-term | Temporary  | Medium              | High                            | <p><b>Effects of Construction</b><br/>Additional infrastructure is not required for the implementation of this option. Therefore no effects on biodiversity from construction would occur. A neutral effect has therefore been determined against this objective.</p> <p><b>Effects of Operation</b><br/>This option would result in a moderate impact to river flows (up to 20% reduction) in the Afon Crai at any time of year the option is implemented. The risks to river habitats includes minor changes to flow hydraulics, connectivity and usable habitat variability as a result of the hydrological impacts of reduced river flows (e.g. decreased wetted width, depth, and flow velocity).</p> <p>The impacted Reach (Afon Crai) is designated under the River Usk/Afon Wysg SAC and Risk Usk Tributaries SSSI. The HRA identified LSEs due to several pathways in which the drought permit can impact qualifying features of the SAC, which include Atlantic salmon, brook and river lamprey and bullhead fish species. The 20% reduction in flows and related reduction in wetted width could potentially impact fish nursery habitat and affect breeding successes of some fish species. In summary, the HRA Stage 2 Appropriate Assessment concluded, on a precautionary basis, that the drought option would have an impact on the integrity of the SAC. The EAR concluded moderate impacts on the SAC and SSSI.</p> <p>The EAR concluded moderate impacts on fish species such as Atlantic salmon and Brown/sea trout as reduced flow may lower river levels and threaten juvenile habitats and gravel spawning areas. However, if minimum flows are maintained, fish may relocate, albeit with increased competition and stress. The impact on Atlantic salmon and Brown/sea trout migration is therefore considered to be moderate negative, short-term and reversible in the reach. Brook and river lamprey, Bullhead and European eel were assessed as having minor impacts.</p> <p>Prey species like fish may be forced into smaller habitats, leading to higher densities that could enhance otter predation efficiency in affected areas; however, this is not expected to significantly impact otter populations, aside from possibly extending the presence of some individuals, resulting in a negligible overall impact.</p> | ---/?                                                                          |
|                               |                                                                                                                                                                                                                                                                                                       | Positive             | N/A                                                     | N/A                 | N/A         | N/A        | N/A                 | N/A                             | <p>Reduced flow poses a risk to WFD features, potentially causing the loss of sensitive species and decreasing diversity and abundance of flow-sensitive taxa and habitats. The impact on macrophytes and macroinvertebrates is considered to be minor negative. For fish, moderate negative impacts are expected due to delays in salmonid migration, reduced water quality, and lower habitat availability and juvenile survival rates. Changes in flow may also alter phytobenthos community composition, but these communities are likely to recover quickly, resulting in negligible overall impact.</p> <p>Overall, a major negative effect has been determined against this objective due to the potential for adverse effects on the SAC and SSSI, although uncertainty remains regarding the scale of impacts.</p> <p><b>Mitigation</b><br/>There are several mitigation measures that are appropriate. These are detailed in the EAR and include, fish pass improvements or easement, design improvements or easements, targeted installation of woody debris, gravel washing, predatory bird deterrence, poaching deterrence, temporary reversion to licensed compensation flow, aeration deployment and fish rescue. Further information on potential mitigation actions is provided in Appendix C to the Crai EAR. Further mitigation is outlined in the Stage 2 Appropriate Assessment in the HRA.</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>Further data is required to better understand the distribution of habitats in this reach to improve certainty on the scale of the impacts and therefore the likelihood of an adverse effect on integrity on the SAC.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | N/A                                                                            |



| SEA Topics and Objectives   |                                                                                                                                     |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| SEA Topic                   | SEA Objective                                                                                                                       | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Residual significance of effect (likely to remain after reasonable mitigation)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                             | 1.2 To avoid and, where required, manage the introduction or spread of invasive and non-native species (INNS).                      | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. Therefore there is no risk of transfer or spread of INNS during construction. A neutral effect has therefore been determined against this objective.<br><br><b>Effects of Operation</b><br>No INNS features that are sensitive or susceptible to drought permit impacts have been identified. A neutral effect has therefore been determined against this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                             |                                                                                                                                     | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Population and human health | 2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing). | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>There is no construction required for this option and therefore no effects are expected on water quality or clean drinking water supply. There would be no direct disturbance to local residents therefore no construction effect has been assessed for this objective.<br><br><b>Effects of Operation</b><br>This option involves a decrease in statutory compensation release from Crai Reservoir to the Afon Crai and the River Usk of 1.36MI/d to conserve the longevity of reservoir storage for use in direct supply during a drought. The operation of this option will provide a gain in deployable output of 1.36MI/d within the Twyi CUS resource zone, which will help to ensure that water supply is maintained during periods of drought. No additional materials or assets are required in order to operate this option, therefore nearby communities will not experience any nuisance from additional processes or vehicle movements. Overall, this option has been assessed as having a minor positive effect on this objective. | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                             |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | +                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                             |                                                                                                                                     |             | Negative                                                | Small               | High       | Short-term | Temporary           | Low                             | Medium                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Effects of Construction</b><br>As there is no construction associated with this option, there will be no effect on the availability of water for people and visitors to maintain economic activity in times of drought. Furthermore, it is not anticipated that the option would generate any economic benefits (e.g. job creation or investment in supply chains).<br><br><b>Effects of Operation</b><br>This option involves a decrease in statutory compensation release from Crai Reservoir to Afon Crai and the River Usk of 1.36MI/d to conserve the longevity of reservoir storage for use in direct supply during a drought. This will help to meet the water supply needs of the local community and visitors to the area in times of drought. Consistent with the definitions of significance used in the assessment, effects in this regard are predicted to be minor positive. |

| SEA Topics and Objectives        |                                                                                                                                                              |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                       |
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| SEA Topic                        | SEA Objective                                                                                                                                                | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Residual significance of effect <i>(likely to remain after reasonable mitigation)</i> |
|                                  | 2.2 To protect and enhance the economic and social needs of the local community.                                                                             | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <p>The EAR has identified that the implementation of the option would reduce the wetted width and depth in the River Usk which may influence water-dependent activities. Any reduction in wetted width and depth may influence water dependent recreational activities. However, water levels will be naturally low in times of drought and associated effects will be temporary in nature.</p> <p>Overall, the option has been assessed as having a neutral negative effect and minor positive effect on this objective.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | +                                                                                     |
| Material assets and resource use | 3.1 To minimise resource use and waste production.                                                                                                           | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Effects of Construction</b><br/>As no additional infrastructure is required for the implementation of the option, no effects from construction would occur. A neutral effect has therefore been determined against this objective.</p> <p><b>Effects of Operation</b><br/>Under this option, water would be treated and distributed using existing infrastructure. Energy consumed during the treatment process is not considered to be significant compared to day to day operation of the WTW and no additional resources or infrastructure are required for implementation of the option. Overall, the option has therefore been assessed as having a neutral effect on this objective.</p>                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                                                                                     |
|                                  |                                                                                                                                                              | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0                                                                                     |
| Water                            | 4.1 To protect and enhance the quality of surface, groundwater, estuarine and coastal water and help achieve the objectives of the Water Framework Directive | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <p><b>Effects of Construction</b><br/>As no additional infrastructure is required for the implementation of this option, no effects from construction on water quality or quality would occur. A neutral effect has therefore been determined against this objective.</p> <p><b>Effects of Operation</b><br/>The operation of this option would result in a moderate reduction of flows in Afon Crai by up to 20%. Water quality monitoring data were limited for Reach 1, with only one site available with data between 2015-2024. The EAR reported water quality is consistent with 'High' WFD status with no seasonality for dissolved oxygen saturation or ammonia. A review of the discharge permit register identified one permit discharging either directly to the Afon Crai in Reach 1 or to watercourses within 500m of the river. This is considered to not be a significant water quality pressure associated with change in dilution due to the implementation of the drought order. Overall the EAR concluded negligible risks to water quality which corresponds to a neutral effect against this objective.</p> | 0                                                                                     |
|                                  |                                                                                                                                                              | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>Limited water quality monitoring data available between 2015-2024.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | N/A                                                                                   |

| SEA Topics and Objectives |                                                                                                                                      |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                |
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| SEA Topic                 | SEA Objective                                                                                                                        | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Residual significance of effect (likely to remain after reasonable mitigation) |
| Water                     | 4.2 To avoid negative impact on surface and groundwater levels and flows, including when this impacts on habitats and/or navigation. | Negative    | Small                                                   | High                | Short-term | Temporary  | Medium              | Medium                          | <b>Effects of Construction</b><br>As no additional infrastructure is required for the implementation of this option, no effects from construction on water quality or quality would occur. A neutral effect has therefore been determined against this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ---                                                                            |
|                           |                                                                                                                                      | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Operation</b><br>Implementing this option will lead to moderate reductions of up to 20% in river flows throughout the reach whenever the drought order is in effect. The temporary reduction in the volume of compensation flow will not result in a flow depleted reach at any time of year that the drought order is implemented. The 20% reduction in river flow has been assessed to cause a consistent moderate negative impact on river flow.<br><br>The option has been assessed as having a minor negative impact on river habitats due to its potential impact on flow hydraulics, connectivity and change in variability in usable habitats.<br><br>Overall, a moderate negative effect has been determined against this objective. | N/A                                                                            |
|                           | 4.3 To increase water efficiency and increase resilience of Public Water Supply (PWS) and natural systems to droughts.               | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. Therefore, no effects on water efficiency and resilience of Public Water Supply (PWS) and natural systems would occur from construction. A neutral effect has therefore been determined against this objective.                                                                                                                                                                                                                                                                                                                                                                                                                          | N/A                                                                            |
|                           |                                                                                                                                      | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Operation</b><br>Implementing this option will result in an increase of 1.36 Ml/d in deployable output within the Twyi CUS water resource zone (WRZ), thereby helping to sustain water supply during drought conditions and increasing resilience of natural systems to drought.<br><br>Overall, this option has been assessed as having a minor positive effect on this objective.                                                                                                                                                                                                                                                                                                                                                           | +                                                                              |
| Soil, geology             | 5.1 To contribute to sustainable use of land and protect and enhance the functionality and quality                                   | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>As no additional infrastructure is required for the implementation of this option, no effects from construction on land use, geology or soils would occur. A neutral effect has been determined against this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0                                                                              |

| SEA Topics and Objectives |                                                                                                                |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                |
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| SEA Topic                 | SEA Objective                                                                                                  | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Residual significance of effect (likely to remain after reasonable mitigation) |
| and land use              | functionality and quality of soils, including the protection of high-grade agricultural land and geodiversity. | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p>No additional effects on Wetland marginal zone as a result of the option. For this reason, a neutral effect is determined against this objective.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0                                                                              |
| Air and Climate           | 6.1 To reduce and minimise air emissions.                                                                      | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Effects of Construction</b><br/>As no additional infrastructure is required for the implementation of the option, no effects from construction would occur. A neutral effect has therefore been determined against this objective.</p> <p><b>Effects of Operation</b><br/>This option will involve the changing release rates from the reservoir and water treatment at the existing Crai Water Treatment Works (WTW). No additional air emissions over existing operational emissions are anticipated. Therefore a neutral impact has been determined against this objective.</p>                                                                                                                                                                                                                                                                                                                                                                              | 0                                                                              |
|                           |                                                                                                                | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | N/A                                                                            |
|                           |                                                                                                                | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Effects of Construction</b><br/>As no additional infrastructure is required for the implementation of the option, no effects from construction would occur. A neutral effect has therefore been determined against this objective.</p> <p><b>Effects of Operation</b><br/>Operational energy requirements and associated carbon emissions have not been quantified by Welsh Water and therefore a qualitative assessment has been made based on the infrastructure required to implement this option.</p> <p>This option involves the reduction in compensation flows released from the Crai Reservoir to Afon Crai and the River Usk. Water would be treated and distributed using existing infrastructure and energy consumed during the treatment process (and associated greenhouse gas emissions) are not considered to be significant compared to day to day operation of the WTW. No further energy consumption would arise from new infrastructure.</p> | 0                                                                              |

| SEA Topics and Objectives         |                                                                                                                            |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                |
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| SEA Topic                         | SEA Objective                                                                                                              | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Residual significance of effect (likely to remain after reasonable mitigation) |
| Air and Climate                   | 6.2 To reduce carbon emissions and to adapt to future changes in climate.                                                  | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | UKCP22 climate change scenarios anticipate longer, hotter summers and, in turn, increases in both the frequency and duration of droughts. This option would provide Welsh Water with additional capacity to manage drought conditions and as such is considered to contribute towards climate change adaptation.<br><br>Overall, this option has been assessed as having a minor positive effect on this objective.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | +                                                                              |
| Archaeology and Cultural Heritage | 7.1 To conserve and enhance historic assets/cultural heritage and their setting, including archaeological important sites. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>As no additional infrastructure is required for the implementation of the option, no effects from construction on heritage assets would occur. A neutral effect has therefore been determined against this objective.<br><br><b>Effects of Operation</b><br>There are several listed buildings in proximity to the reach, including a Grade II road bridge; Pont Nantyrharn. Despite the proximity to the river, the implementation of the drought permit is not expected to lead to any adverse archaeology and cultural heritage related impacts. A reduction in the flow of Afon Crai as a result of the option is not anticipated to have a detrimental effect on heritage assets as these do not include water dependant features and any effects on setting would be temporary and reversible. A neutral effect is therefore anticipated against this objective.                                                                                                                                                                                                                                                                            | 0                                                                              |
|                                   |                                                                                                                            | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | N/A                                                                            |
| Landscape and                     | 8.1 To conserve, protect and enhance landscape and townscape.                                                              | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>As no additional infrastructure is required for the implementation of the option, no landscape or visual effects from construction would occur. A neutral effect has been determined against this objective.<br><br><b>Effects of Operation</b><br>The Crai and impacted reach of the Afon Crai are located within the Bannau Brychieniog National Park. The reduction of the compensation release may affect the landscape and visual amenity value in the national park by reducing the quantity of water in the river that cascades down the various waterfalls. This will only be temporary and will be ameliorated once the drought has passed. Moreover, flows during a drought will be low such that further reduction in flows due to the option would not result in a further loss of aesthetic value. No new structures will be built above ground. The option is therefore not expected to affect landscape features or sites, and will not have significant visual impacts.<br><br>The water level in Crai Reservoir would be maintained over a longer period than without the operation of the option, which would help maintain the | -                                                                              |

| SEA Topics and Objectives |                                             |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                              |                                                                                |
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| SEA Topic                 | SEA Objective                               | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                   | Residual significance of effect (likely to remain after reasonable mitigation) |
| Visual Amenity            | and townscape character and visual amenity. | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | aesthetic value of the reservoir, however, due to the temporary nature of these results, the effect is considered negligible.<br><br>On this basis, a minor negative effect has been determined against this objective.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None | 0                                                                              |

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                           |          |
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| Option Name:        | 8201-2(ii) Ystradfellte                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Water Resource Zone Name: | Twyi CUS |
| Option Description: | <p>Ystradfellte Reservoir is located in the South West Area, within the Twyi CUS (8201) water resource zone (WRZ). Ystradfellte Reservoir is formed by a dam on the Afon Dringarth which is in Powys and wholly within the Bannau Brycheiniog National Park.</p> <p>If granted, this option would involve a temporary reduction in the volume of compensation flow normally required from the reservoir which will help conserve reservoir storage and maintain essential public water supplies during drought conditions. Implementation of the drought permit will also help to improve the prospect of reservoir recovery over the winter. The option could be applied for during the period May to October inclusive, and would seek to reduce the compensation release normally required from Ystradfellte Reservoir by up to 20%. That is, reduce the compensation release by up to 1.0 Ml/d, potentially reducing it from 5.0 Ml/d to 4.0 Ml/d.</p> <p>No additional infrastructure would be required to enable this option to be implemented.</p> |                           |          |

| SEA Topics and Objectives     |                                                                                                                                                                                                                                                                                                       | Assessment of option |                                                         |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Residual significance of effect (likely to remain after reasonable mitigation) |
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| SEA Topic                     | SEA Objective                                                                                                                                                                                                                                                                                         | Effect Type          | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                |
| Biodiversity, flora and fauna | 1.1 To protect and enhance designated sites and their qualifying features, biodiversity, priority habitats and species ecological functions, capacity and habitat connectivity and to protect and enhance natural capital and the biodiversity and ecosystem services that contribute to the economy. | Negative             | Small                                                   | Medium              | Short-term | Temporary  | Medium              | Medium                          | <p><b>Effects of Construction</b></p> <p>Additional infrastructure is not required for the implementation of this option. Therefore no effects on biodiversity from construction would occur.</p> <p><b>Effects of Operation</b></p> <p>This option would result in a moderate impacts to river flows (up to 20% reduction) in the Afon Dringarth (Reach 1) at any time of year the option is implemented and minor impacts in river flows (up to 13%) in Afon Mellte (Reach 2) throughout the reach during the summer period, with negligible reductions in autumn/winter. In Reach 1, river habitats face moderate risks from changes in flow hydraulics and minor risks to connectivity and habitat variability due to reduced river flows. In Reach 2, the risks are minor for changes in flow hydraulics, connectivity, and habitat variability, also stemming from decreased wetted width, depth, and flow velocity.</p> <p>The EAR concludes moderate negative impacts in Reach 1 and minor negative impacts in Reach 2 on Bullhead (due to their flow-sensitive nature and the potential impact of the drought permit on water quality) and Brown/sea trout (reduction in spawning and juvenile survival due to habitat loss). Although juvenile trout could move to suitable habitats if flows are sustained, they may face increased competition and stress. The overall impacts are assessed as short-term and reversible.</p> <p>Reduced flow threatens WFD features, potentially leading to the loss of sensitive species and decreased diversity of flow-sensitive taxa and habitats. The impact on macrophytes and macroinvertebrates is moderate negative in Reach 1 and minor negative in Reach 2. For fish, anticipated effects include delays in salmonid migration, reduced water quality, and lower juvenile survival, with moderate negative impacts in Reach 1 and minor in Reach 2. Flow changes may also alter phytobenthos composition, but these communities are expected to recover quickly, resulting in a minor overall impact in both reaches.</p> | --/?                                                                           |
|                               |                                                                                                                                                                                                                                                                                                       | Positive             | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <p>The HRA concluded no likely significant effects on any designated sites as a result of the drought permit.</p> <p>Overall, a moderate negative effect has been determined against this objective due to the potential for adverse effects on fish habitats and migration, although some uncertainty remains regarding the scale of impacts.</p> <p><b>Mitigation</b></p> <p>There are several mitigation measures that are appropriate. These are detailed in the EAR and include, fish pass improvements or easement, design improvements or easements, targeted installation of woody debris, gravel washing, predatory bird deterrence, poaching deterrence, temporary reversion to licensed compensation flow, aeration deployment and fish rescue. Further information on potential mitigation actions is provided in Appendix C to the Ystradfellte EAR.</p> <p><b>Assumptions</b></p> <p>When assessing the impact on fish, it was assumed that populations of the relevant species are present in the hydrological zone of influence and that worst-case impacts would occur.</p> <p><b>Uncertainty</b></p> <p>Further data is required to better understand the potential impact of a 20% reduction in compensation flows on wetted width and depth on juvenile habitat as limited information was available at the time of this assessment.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | N/A                                                                            |



| SEA Topics and Objectives   |                                                                                                                                     |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                |
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| SEA Topic                   | SEA Objective                                                                                                                       | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                | Residual significance of effect (likely to remain after reasonable mitigation) |
|                             | 1.2 To avoid and, where required, manage the introduction or spread of invasive and non-native species (INNS).                      | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. Therefore there is no risk of transfer or spread of INNS during construction.                                                                                                                                                                                                                                          | N/A                                                                            |
|                             |                                                                                                                                     | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Operation</b><br>No INNS features that are sensitive or susceptible to drought permit impacts have been identified. Therefore no effects have been assessed for this objective.                                                                                                                                                                                                                                             | N/A                                                                            |
| Population and human health | 2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing). | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. Therefore no effects on health and wellbeing from construction would occur. A neutral effect has therefore been determined against this objective.                                                                                                                                                                     | 0                                                                              |
|                             |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Operation</b><br>The operation of this option will provide a gain in deployable output of 1 Ml/d within the Twyi CUS WRZ, which will help to ensure that water supply is maintained during periods of drought. Those living, working or visiting the area are unlikely to be directly disturbed by the scheme.<br><br>Overall, this option has been assessed as having a minor positive effect on this objective.           | +                                                                              |
|                             |                                                                                                                                     | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <b>Effects of Construction</b><br>As there is no construction associated with this option, there will be no effect on the availability of water for people and visitors to maintain economic activity in times of drought. Further, it is not anticipated that the option would generate any economic benefits (e.g. job creation or investment in supply chains). A neutral effect has therefore been determined against this objective. | -                                                                              |

| SEA Topics and Objectives        |                                                                                  |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                       |
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| SEA Topic                        | SEA Objective                                                                    | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Residual significance of effect <i>(likely to remain after reasonable mitigation)</i> |
|                                  | 2.2 To protect and enhance the economic and social needs of the local community. | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <p>The EAR has identified that the implementation of the option would reduce the wetted width and depth in the Afon Mellte which may influence water-dependent activities. Bannau Brychieniog National Park provides excellent recreational opportunities, especially for walkers. Canoeing is possible downstream of the Porth yr Ogof swallow holes. These swallow holes also attract cavers. The Afon Mellte is also supports angling. Any reduction in wetted width and depth may influence water-dependent activities such as angling and canoeing. However, water levels will be naturally low in times of drought and the impacts will be temporary in nature and will be ameliorated once the drought has passed. A minor negative effect is concluded due to the location within the National Park.</p> <p>Overall, this option has been assessed as having a mixed minor negative and positive effect on the objective.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p> | +                                                                                     |
| Material assets and resource use | 3.1 To minimise resource use and waste production.                               | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Effects of Construction</b><br/>As no additional infrastructure is required for the implementation of the option, no effects from construction would occur. A neutral effect has therefore been determined against this objective.</p> <p><b>Effects of Operation</b><br/>Operation of the option will require no additional energy use or resources, over and above those currently used to treat water at Cefn Driscoed Water Treatment Works (WTW). The option will make use of existing infrastructure resulting in a minor positive effect on this objective.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0                                                                                     |
|                                  |                                                                                  | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | +                                                                                     |
|                                  | 4.1 To protect and enhance the quality of                                        | Negative    | Small                                                   | Medium              | Short-term | Temporary  | Low                 | Medium                          | <p><b>Effects of Construction</b><br/>Additional infrastructure is not required for the implementation of this option. Therefore no effects on the quality of surface, groundwater, estuarine and coastal water from construction would occur. A neutral effect has therefore been determined against this objective.</p> <p><b>Effects of Operation</b><br/>The operation of this option would result in a moderate reduction of flows in Afon Dringarth (Reach 1) by up to 20% and a minor reduction in the Afon Mellte (Reach 2) of 13%.</p> <p>Water quality monitoring data were only available for Reach 1 and was consistent with 'Good' WFD status for dissolved oxygen and 'High' WFD status for ammonia, with no apparent seasonality. The insufficient data in Reach 2 meant an assessment of the general quality could not be made. In Reach 1, no water quality pressures were identified. In Reach 2, minor pressures were linked to a single permit with summer conditions, which</p>                                          | -/?                                                                                   |

| SEA Topics and Objectives |                                                                                                                                      |                                                                    | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| SEA Topic                 | SEA Objective                                                                                                                        | Effect Type                                                        | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Residual significance of effect (likely to remain after reasonable mitigation)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Water                     | surface, groundwater, estuarine and coastal water and help achieve the objectives of the Water Framework Directive                   | Positive                                                           | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <p>Reach 1, no water quality pressures were identified. In Reach 2, minor pressures were linked to a single permit with numeric conditions, which discharges either directly into the Afon Mellte or into nearby watercourses within 500 metres. Given the very low flow rates, any changes in dilution from the drought permit are expected to have a minor negative effect on this water quality pressure.</p> <p>Overall, a minor negative effect has been determined against this objective, with uncertainty due to the availability of water quality monitoring data in Reach 2.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>Water quality monitoring data unavailable for Reach 2.</p>                                                                                                                                                                                                                                                                                                                                       | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                           | 4.2 To avoid negative impact on surface and groundwater levels and flows, including when this impacts on habitats and/or navigation. | Negative                                                           | Small                                                   | High                | Short-term | Temporary  | Medium              | Medium                          | <p><b>Effects of Construction</b><br/>Additional infrastructure is not required for the implementation of this option. Therefore, no effects on surface and groundwater levels and flows from construction would occur. A neutral effect has therefore been determined against this objective.</p> <p><b>Effects of Operation</b><br/>The operation of this option will have a negative impact on river flows ranging from a moderate negative (20% reduction) impact on Reach 1 at any time throughout the year that the drought permit is implemented to a minor negative (13% reduction) impact during summer on Reach 2. Nevertheless, none of the reaches will experience complete flow depletion.</p> <p>The option has been evaluated as having a moderate negative impact on river habitats in Reach 1, particularly concerning flow hydraulics, along with a minor negative impact related to connectivity and variability in usable habitat. In Reach 2, a minor negative impact has been assessed for flow hydraulics, connectivity, and the variability of usable habitat.</p> | --                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                           |                                                                                                                                      | Positive                                                           | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <p>The impact on Ystradfellte Reservoir would be a marginal increase in levels / storage, relative to the position without the drought permit, due to the reduced compensation outflow which would help to conserve water in storage. The length of time of shoreline exposure would be slightly shorter, compared to the baseline drought scenario, as the reservoir would reach top water level slightly earlier during the winter refill period. This would be considered as a minor positive impact.</p> <p>Overall, a mixed moderate negative and minor positive effect has been determined against this objective.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                       | +                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                           | Water                                                                                                                                | 4.3 To increase water efficiency and increase resilience of Public | Negative                                                | N/A                 | N/A        | N/A        | N/A                 | N/A                             | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p><b>Effects of Construction</b><br/>Additional infrastructure is not required for the implementation of this option. Therefore, no effects on water efficiency and resilience of Public Water Supply (PWS) from construction would occur. A neutral effect has therefore been determined against this objective.</p> <p><b>Effects of Operation</b><br/>Implementing this option will result in an increase of 1 Ml/d in deployable output within the Twyi CUS WRZ, thereby helping to sustain water supply during drought conditions and increasing resilience of natural systems to drought.</p> <p>Overall, this option has been assessed as having a minor positive effect on this objective.</p> |

| SEA Topics and Objectives  |                                                                                                                                                                                         |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                               |
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| SEA Topic                  | SEA Objective                                                                                                                                                                           | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Residual significance of effect (likely to remain after reasonable mitigation)                |
|                            | Water Supply (PWS) and natural systems to droughts.                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | +                                                                                             |
| Soil, geology and land use | 5.1 To contribute to sustainable use of land and protect and enhance the functionality and quality of soils, including the protection of high-grade agricultural land and geodiversity. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. Therefore, no effects on soil, geology and land use from construction would occur. A neutral effect has therefore been determined against this objective.<br><br><b>Effects of Operation</b><br>The operation of this option could result in more drawdown than under current licensed conditions. Conceivably, this could lead to drying out of adjacent wetland soils. However, it is noted that the option would be implemented during drought conditions and therefore it is considered that there will be no additional effects on wetland/marginal soils as a result of the option.<br><br>Although a compensation flow would be maintained throughout operation, this would be reduced from 5.0 MI/d to 4.0 MI/d. This would ensure that flows in the Afon Mellte are maintained at some level; however, the flows could be reduced by up to 20% of the existing levels in low flows in Reach 1 and 13% on Reach 2 causing a reduction in wetted area. However, it is noted that the option would be implemented during drought conditions and therefore it is considered that there will be no additional effects on wetland/marginal soils as a result of the option. For this reason, a neutral effect is determined against this objective. | 0                                                                                             |
|                            |                                                                                                                                                                                         | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None |
| Air and Climate            | 6.1 To reduce and minimise air emissions.                                                                                                                                               | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. Therefore no air emissions from construction would occur.<br><br><b>Effects of Operation</b><br>This option will involve the changing release rates from the reservoir and water treatment at the existing Cefn Driscoed Water Treatment Works (WTW). No additional air emissions over existing operational emissions are anticipated. Therefore a neutral impact has been determined against this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0                                                                                             |
|                            |                                                                                                                                                                                         | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None |

| SEA Topics and Objectives         |                                                                                                                            |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                |
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| SEA Topic                         | SEA Objective                                                                                                              | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Residual significance of effect (likely to remain after reasonable mitigation) |
| Air and Climate                   | 6.2 To reduce carbon emissions and to adapt to future changes in climate.                                                  | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option and as a result no carbon emissions from construction would occur. A neutral effect has therefore been determined against this objective.<br><br><b>Effects of Operation</b><br>Operational energy requirements and associated carbon emissions have not been quantified by Welsh Water for any options at this stage and therefore a qualitative assessment has been made based on the infrastructure required to implement this option.<br><br>This option does not require any changes to infrastructure or pumping rates. Water would be treated at the existing Cefn Driscoed Water Treatment Works (WTW). Energy would be required to pump and treat the water through the existing works (with associated carbon emissions); however, no further energy consumption would arise from new infrastructure.                                                                                                                                                  | 0                                                                              |
|                                   |                                                                                                                            | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | UKCP22 climate change scenarios anticipate longer, hotter summers and, in turn, increases in both the frequency and duration of droughts. This option would provide Welsh Water with additional capacity to manage drought conditions and as such is considered to contribute towards climate change adaptation.<br><br>Overall, this option has been assessed as having a minor positive effect on this objective.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | +                                                                              |
| Archaeology and Cultural Heritage | 7.1 To conserve and enhance historic assets/cultural heritage and their setting, including archaeological important sites. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. Therefore, no impacts on archaeology and cultural heritage from construction would occur. A neutral effect has therefore been determined against this objective.<br><br><b>Effects of Operation</b><br>There are the Lychgate and railings to Church of Saint Mary Grade II and the Church of Saint Mary Grade II* listed buildings c.150m from Reach 2 of Afon Mellte. There is also the Castell Coch Amddiffynnol scheduled monument less than 20m from Reach 1 of Afon Mellte. Despite their proximity to the river, the implementation of the drought permit is not expected to lead to any archaeology and cultural heritage impacts. A reduction in the flow of the Afon Mellte as a result of the option is not anticipated to have a detrimental effect on heritage assets as these contain no water dependant features and any effects on setting would be temporary and reversible. A neutral effect is therefore anticipated against this objective. | 0                                                                              |
|                                   |                                                                                                                            | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | N/A                                                                            |

| SEA Topics and Objectives    |                                                                                            |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                       |
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| SEA Topic                    | SEA Objective                                                                              | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Residual significance of effect <i>(likely to remain after reasonable mitigation)</i> |
| Landscape and Visual Amenity | 8.1 To conserve, protect and enhance landscape and townscape character and visual amenity. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. Therefore no impacts on landscape and visual amenity from construction would occur. A neutral effect has therefore been determined against this objective.<br><br><b>Effects of Operation</b><br>The overall landscape and visual amenity of the area is appealing. There are several features of geological interest which attract visitors, most notably the swallow-holes of Porth-yr-Ogof where the Afon Mellte has migrated underground in spectacular fashion leaving a dry gorge above the cave. Flows during drought conditions will naturally be low therefore the implementation of the drought permit is not expected to lead to any further landscape and visual amenity impacts.<br><br>There may be positive effects associated with Ystradfellte as water levels would be retained for longer than without the drought permit. However, this is not located within any areas designated for landscape quality therefore, it is assessed as a neutral effect. | 0                                                                                     |
|                              |                                                                                            | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | Overall, this option has been assessed as having a neutral effect on the objective.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0                                                                                     |

|                           |                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                         |                           |            |                  |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                |
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| Option Name:              |                                                                                                                                                           | 8203-2 Nant y Moch                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                         | Water Resource Zone Name: |            | North Ceredigion |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                |
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| Option Description:       |                                                                                                                                                           | <p>The proposed drought permit is for DCWW to take a temporary pumped abstraction from Nant y Moch Reservoir, of up to 5 Ml/d, to support essential public water supply demands in the North Ceredigion area, and help ensure there is enough resource to maintain essential public water supplies throughout a severe drought without the need for more extreme customer side measures. The drought permit could be applied for during the period July to December, inclusive. DCWW has licences to abstract from watercourses nearby on Maesnant and the Nant y Moch, but it is expected that there will be zero flow in the streams, and no abstraction from them, during the drought conditions that will be prevailing when this drought permit is operational.</p> <p>To apply for the proposed drought permit, DCWW must first acquire more details of Nant y Moch Reservoir, draw-off-arrangements, and confirm how and where within the reservoir the proposed abstraction will be taken within the drought permit. However, a simple abstraction from a temporary pontoon is envisaged. DCWW intend to pump the water to their existing Nant y Moch stream source works, and from there follow their existing piped system. Any temporary works that may be necessary in order to physically implement the drought permit have not been assessed in the EAR but have been included in the SEA at a high level.</p> |                                                         |                           |            |                  |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                |
|                           |                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                         |                           |            |                  |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                |
| SEA Topics and Objectives |                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Assessment of option                                    |                           |            |                  |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                |
| SEA Topic                 | SEA Objective                                                                                                                                             | Effect Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Scale of effect – geographical &/or population affected | Certainty of effect       | Duration   | Permanence       | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Residual significance of effect (likely to remain after reasonable mitigation) |
|                           | 1.1 To protect and enhance designated sites and their qualifying features, biodiversity, priority habitats and species ecological functions, capacity and | Negative                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Small                                                   | High                      | Short-term | Temporary        | Low                 | Low                             | <p><b>Effects of Construction</b></p> <p>This option requires the siting of temporary, above-ground infrastructure (pumps and generators) to enable water to be taken from Nantymoch Reservoir. Mobile pumping would maintain water for the hydro-power scheme and also enable water to be pumped for treatment at Bontgoch WTW. Construction activities such as excavation may be required.</p> <p>Afon Rheidol, approximately 6 km downstream of Nantymoch Reservoir, is within Rheidol Woods and Gorge SAC which is concurrent with the area of SSSI. The Coed Rheidol NNR comprises about 173 hectares of the SAC/SSSI. Mwyngloddf Brynrafr SSSI on the east side of Drosgol, a locally prominent hill designated for its Geological features. There are no sensitive features present in the SSSI.</p> <p>Any temporary infrastructure required for this option will not be located within these designated sites. Associated construction impacts (e.g. noise and habitat disturbance) would be very small in scale, short term in nature and, assuming good practice is followed, will not result in significant and long term effects on local biodiversity. It is assumed that, wherever possible, Welsh Water will seek to route temporary pipelines and site temporary pumping infrastructure on existing areas of hardstanding (roads, parking areas, tracks etc).</p> <p>No effects on the ecological quality of habitats are anticipated to result from construction activity, assuming that best practice construction techniques are followed (e.g. the use of sediment traps).</p> <p>Overall, a neutral effect has been determined against this objective.</p> <p><b>Effects of Operation</b></p> <p>The temporary pumped abstraction has the potential to influence water levels in Nantymoch Reservoir and flows in the downstream Afon Rheidol. The reservoir is stocked with varieties of trout which could be affected by changing water levels. The temporary pumped abstraction of up to 5Ml/d could continue for up to six months under the drought permit, however, the EAR described that a period of 2 to 3 months is more likely as other reservoirs (Llyn Llvaod Reheidol and Craig y Pistyll) respond well to rainfall. However, based on theoretical use of the permit for six months, the ER</p> | 0                                                                              |



| SEA Topics and Objectives     |                                                                                                                                             |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                |
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| SEA Topic                     | SEA Objective                                                                                                                               | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Residual significance of effect (likely to remain after reasonable mitigation) |
| Biodiversity, flora and fauna | habitat connectivity and to protect and enhance natural capital and the biodiversity and ecosystem services that contribute to the economy. | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <p>Reservoirs (e.g. Nantmoch Reservoir and Nant y Moch) response will remain however, based on the overall use of the permit for all months, the EA concluded the total additional abstraction of 915MI from Nant y Moch Reservoir would be equivalent to around 3.5% of the total storage capacity, therefore the impact on water levels would be negligible.</p> <p>Similarly, negligible hydrological impacts were concluded for the downstream Afon Rheidol as despite the 3.5% reduction in storage, it is unlikely this would be of a sufficient magnitude to make any discernible difference in the operation of the existing hydropower scheme releases or the highly artificial flow regime of the Afon Rheidol, therefore impacts to the Afon Rheidol have been assessed as negligible.</p> <p>Furthermore, the negligible hydrological impacts associated with the option's implementation is not anticipated to reduce the availability of habitats and/or change the composition of the fish, macrophyte, phytobenthos and macroinvertebrate communities and others. It is noted that there may be noise/vibration from mobile pumping and generators. However, it would be possible to mitigate the effects of this by locating equipment away from sensitive habitats/species if necessary.</p> <p>Overall, a neutral effect is determined against this objective.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>It is assumed that temporary pumping/generators (where required) would be located away from sensitive receptors and temporary pipelines would be routed along roads where possible.</p> <p><b>Uncertainty</b><br/>None</p> | N/A                                                                            |
|                               | 1.2 To avoid and, where required, manage the introduction or spread of invasive and non-native species (INNS).                              | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Effects of Construction</b><br/>This option requires the siting of temporary, above-ground infrastructure (pumps and generators) to enable water to be taken from Nantymoch Reservoir. There are minor construction requirements associated with this option (e.g. pipeline and pumping infrastructure) and some excavation may be required. It is assumed that biosecurity measures will be adhered to throughout any required works and these will be sufficient to avoid any negative effects, therefore, a neutral effect is assessed.</p> <p><b>Effects of Operation</b><br/>The EAR concluded a negligible hydrological impact, therefore, no impacts on INNS are anticipated.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 0                                                                              |
|                               |                                                                                                                                             | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <p><b>Mitigation</b><br/>Standard biosecurity measures will be adopted for all construction works.</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | N/A                                                                            |
|                               | 2.1 To protect and                                                                                                                          | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <p><b>Effects of Construction</b><br/>The siting of mobile pumps, diesel generator and abstraction and transfer pipes would have no effect on continuity of clean drinking water supply at times of drought, nor would it affect surface water quality assuming the use of best practice construction techniques. The supporting work for the construction phase may result in some disturbance to local residents associated with noise and vibration from bringing pumps, pipeline and generators to site. However, the site is in a rural location with very few likely sensitive receptors present. Given the scale of this option, location of new infrastructure, and the temporary nature of any health impacts, a neutral effect is recorded against this objective.</p> <p><b>Effects of Operation</b><br/>This option leads to moderate yield of 5MI/d of drinking water at times of drought, which will help to ensure that water supply is maintained during periods of drought in the North Ceredigion WRZ. Consistent with the criteria for assessing significance, this would result in a moderate positive</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 0                                                                              |

| SEA Topics and Objectives   |                                                                                                                                     |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                       |
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| SEA Topic                   | SEA Objective                                                                                                                       | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Residual significance of effect <i>(likely to remain after reasonable mitigation)</i> |
| Population and human health | 2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing). | Positive    | Small                                                   | High                | Short-term | Temporary  | Medium              | Medium                          | <p>effect.</p> <p>It is noted that for those people living in proximity to or visiting the area, there is the potential for noise disturbance through the operation of generators. However, the number of receptors that could be affected is very small and any effects would be small scale and temporary. Effects in this regard are considered neutral.</p> <p>Overall, a moderate positive effect has been determined against this objective.</p> <p><b>Mitigation</b><br/>Best practice construction methods.</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | ++                                                                                    |
|                             | 2.2 To protect and enhance the economic and social needs of the local community.                                                    | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <p><b>Effects of Construction</b><br/>The construction of this option will have no effect on the availability of water for people and visitors to maintain economic activity in times of drought. Whilst there may be some economic benefits associated with construction (e.g. spend in the local supply chain), any effects in this regard would be negligible, commensurate with the scale of construction works.</p> <p>This option is located within the Southern Cambrian mountains, an area that provides opportunities for outdoor recreation activities. Although there may be local disruption to footpaths and access from the siting of temporary above ground infrastructure, footpath/road diversions should be possible. No effects on opportunities for recreation activities are therefore anticipated. For this reason, a neutral effect has been determined against this objective.</p> <p><b>Effects of Operation</b><br/>This option will provide an additional moderate yield of 5 Ml/d, which will help to meet the water supply needs of homes, businesses and visitors to this area during periods of drought and support the local and regional economy.</p> <p>Nantymoch Reservoir lies within the Southern Cambrian mountains and there is therefore the potential for the operation of this option to impact on recreational opportunities (such as angling) within and around the reservoir, and downstream. However, the EAR has concluded that the proposed temporary abstraction will have negligible hydrological impacts on water levels in the reservoir (reduction in approximately 3.6% of the total storage capacity) and downstream flow regime in the Afon Rheidol (no reduction in flows assuming the statutory compensation flow from Nantymoch reservoir would continue in drought conditions). For these reasons, no effects on recreational activities (e.g. walking, birdwatching or angling etc) within, around or downstream of the reservoir and the downstream Afon Rheidol are anticipated.</p> <p>Overall, a moderate positive effect has been determined against this objective.</p> | 0                                                                                     |
|                             |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Medium              | Medium                          | <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ++                                                                                    |
| Material assets             | 3.1 To minimise                                                                                                                     | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Effects of Construction</b><br/>The construction phase of the option will require the movement of plant and materials (e.g. pumps, pipes etc) to site, which will consume fuel. There would also be materials within the new infrastructure including pipeline (plastics and metals). It is acknowledged, however, that it may be possible to hire equipment or use existing Welsh Water pumps, generators and/or pipes.</p> <p>The siting of the infrastructure required for this option will have no effect on reuse and recycling of waste, nor will the option encourage sustainable design or the use of sustainable materials.</p> <p>Overall, this option has been assessed as having a minor negative effect on this objective.</p> <p><b>Effects of Operation</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | -                                                                                     |

| SEA Topics and Objectives |                                                                                                                                                              | Assessment of option |                                                         |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                |
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| SEA Topic                 | SEA Objective                                                                                                                                                | Effect Type          | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Residual significance of effect (likely to remain after reasonable mitigation) |
| and resource use          | resource use and waste production.                                                                                                                           | Positive             | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <p>Operation of the option will require additional pumping (with power assumed to be provided by generators) for the abstraction of up to 5 Ml/d and transfer over a distance of approximately 400m. Due to the estimated length of pipeline, the energy consumption is expected to be moderate and so a minor negative effect has been determined against this objective, taking into account the short-term and temporary nature of the option.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>It is assumed that the distance from abstraction to the raw water main is approximately 400m.</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | N/A                                                                            |
| Water                     | 4.1 To protect and enhance the quality of surface, groundwater, estuarine and coastal water and help achieve the objectives of the Water Framework Directive | Negative             | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <p><b>Effects of Construction</b><br/>This option requires the siting of temporary, above-ground infrastructure (pumps and generators) to enable water to be taken from Nantymoch Reservoir. Construction activities such as the creation of hardstanding may be required.</p> <p>Construction activities will not lead to a change in river flows, surface water or groundwater quantity. No effects on water quality or WFD status would be expected from construction activities, assuming that best practice construction techniques are followed (e.g. the use of sediment traps). A neutral effect has therefore been determined against this objective.</p> <p><b>Effects of Operation</b><br/>Nantymoch Reservoir and Afon Rheidol are heavily modified water bodies with ecological status of 'moderate' (WFD Cycle 3 classification). The flow regime of the Afon Rheidol is heavily influenced by operation of the Cwm Rheidol HEP scheme.</p> <p>The temporary pumped abstraction has the potential to influence water levels in Nantymoch Reservoir and flows in the downstream Afon Rheidol. However, the EAR has concluded that the proposed temporary abstraction will have negligible hydrological impacts on water levels in the reservoir (reduction in approximately 3.6% of the total storage capacity) and downstream flow regime in the Afon Rheidol (no reduction in flows assuming the statutory compensation flow from Nantymoch reservoir would continue in drought conditions).</p> | 0                                                                              |
|                           |                                                                                                                                                              | Positive             | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <p>Given that there is no negative hydrological impact associated with the option, effects on water quality are equally assessed as negligible. Similarly, there would be no flow pressures or water quality pressures that would pose an increased risk to any water-dependent environmental features within the vicinity of the Nantymoch intake. No effects on WFD status are therefore anticipated.</p> <p>Overall, a neutral effect has been determined against this objective.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | N/A                                                                            |
|                           |                                                                                                                                                              | Negative             | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <p><b>Effects of Construction</b><br/>This option requires the siting of temporary, above-ground infrastructure (pumps and generators) to enable water to be taken from Nantymoch Reservoir. Mobile pumping would maintain water for the hydro-power scheme and also enable water to be pumped for treatment at Bontgoch WTW. Construction activities such as excavation may be required.</p> <p>Construction activities will not impact upon surface and groundwater levels and flows, nor habitats and/or navigation. For this reason, a neutral effect has been determined against this objective.</p> <p><b>Effects of Operation</b><br/>The temporary pumped abstraction of up to 5Ml/d could continue for up to six months under the drought permit, however, the EAR described that a period of 2 to 3 months is more likely as other reservoirs (Llyn Llared, Bala and Craig y Bickell) respond well to rainfall. However, based on</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0                                                                              |

| SEA Topics and Objectives |                                                                                                                                      |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                |  |
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| SEA Topic                 | SEA Objective                                                                                                                        | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Residual significance of effect (likely to remain after reasonable mitigation) |  |
| Water                     | 4.2 To avoid negative impact on surface and groundwater levels and flows, including when this impacts on habitats and/or navigation. | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <p>period of 2 to 3 months is more likely as other reservoirs (Llyn Llygad Rheidol and Craig y Pistyll) respond well to rainfall. However, based on theoretical use of the permit for six months, the EAR concluded the total additional abstraction of 915Ml from Nant y Moch Reservoir would be equivalent to around 3.5% of the total storage capacity, therefore, the impact on water levels would be negligible.</p> <p>Similarly, negligible hydrological impacts were concluded for the downstream Afon Rheidol as the continuous compensation release of 13.84Ml/d from Nant y Moch would continue and, as a result, there would be no reduction in low flows. The high flow regime from Nant y Moch Reservoir to the Afon Rheidol is managed through hydro-power releases of up to 160Ml/d and reservoir spill. It is assumed that during a drought, Nant y Moch would not be spilling as the smaller local DCWW reservoirs (Llyn Llygad Reheidol and Craig y Pistyll) would have completely refilled prior to this. Despite the 3.5% reduction in storage, it is unlikely this would be of a sufficient magnitude to make any discernible difference in the operation of the hydropower scheme or the highly artificial flow regime of the Afon Rheidol. Consequently, no impacts are anticipated on surface and groundwater levels and on habitats and/or navigation. Therefore a neutral effect has been determined against this objective.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p> | N/A                                                                            |  |
|                           | 4.3 To increase water efficiency and increase resilience of Public Water Supply (PWS) and natural systems to droughts.               | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <p><b>Effects of Construction</b><br/>The option requires the siting of temporary, above-ground infrastructure (pumps and generators) to enable water to be taken from Nantymoch Reservoir with the aim of maintaining the Public Water Supply (PWS). The construction of this option will have no effect on the existing water resources and has been assessed as having a neutral effect on this objective.</p> <p><b>Effects of Operation</b><br/>Implementing this option will result in a moderate increase of 5 Ml/d in deployable output within the North Ceredigion WRZ, thereby helping to sustain water supply during drought conditions and increasing resilience of natural systems to drought.</p> <p>Overall, this option has been assessed as having a moderate positive effect on this objective.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 0                                                                              |  |
|                           |                                                                                                                                      | Positive    | Small                                                   | High                | Short-term | Temporary  | Medium              | Medium                          | <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ++                                                                             |  |
|                           | 5.1 To contribute to sustainable use of land                                                                                         | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Effects of Construction</b><br/>This option requires the siting of temporary, above-ground infrastructure (pumps and generators) to enable water to be taken from Nantymoch Reservoir. Construction activities such as excavation may be required. The soils in the area around the reservoir and in the downstream Afon Rheidol are very acid loamy upland soils with a wet peaty surface. Construction may therefore affect these upland/wetland soils due to the potential need for the creation of hardstanding. The exact location of infrastructure is not currently known, although it is assumed that existing hardstanding on which to locate infrastructure will be sought in preference to new excavations. Given this assumption, and the small scale and temporary nature of the works, a neutral effect has been determined against this objective.</p> <p><b>Effects of Operation</b><br/>The EAR has concluded that the proposed temporary abstraction will have negligible hydrological impacts on water levels in the reservoir (reduction</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0                                                                              |  |

| SEA Topics and Objectives  |                                                                                                                                            |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                         |
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| SEA Topic                  | SEA Objective                                                                                                                              | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Residual significance of effect <i>(likely to remain after reasonable mitigation)</i>                   |
| Soil, geology and land use | and protect and enhance the functionality and quality of soils, including the protection of high-grade agricultural land and geodiversity. | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <p>The EA has concluded that the proposed temporary abstraction will have negligible hydrological impacts on water levels in the reservoir (reduction in approximately 3.6% of the total storage capacity) and downstream flow regime in the Afon Rheidol (no reduction in flows assuming the statutory compensation flow from Nantymoch reservoir would continue in drought conditions). Therefore, it is considered that there will be no additional effects on wetland/marginal soils around the lake and the Afon Rheidol.</p> <p>Overall, a neutral effect has been determined for this objective.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>The exact location of infrastructure is not currently known and it is assumed that existing hardstanding on which to locate infrastructure will be sought in preference to new excavations.</p> <p><b>Uncertainty</b><br/>The exact location of infrastructure is not currently known.</p>                                                                                                                                                      | N/A                                                                                                     |
| Air and Climate            | 6.1 To reduce and minimise air emissions.                                                                                                  | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Effects of Construction</b><br/>The construction of this option will require the movement of plant and materials (e.g. pumps, pipes etc) to site, which will require vehicle movements and fuels, resulting into emissions to the air. There will also be construction activities such as excavation likely to result into dust nuisance. However, the site is in a rural location with no AQMAS in proximity and very few likely sensitive receptors present. Overall, a minor negative effect has been determined against this objective.</p> <p><b>Effects of Operation</b><br/>The number of vehicle trips is anticipated to decrease significantly compared to those during construction. However, there will be emissions from the temporary pumping of 5 Ml/d from Nantymoch Reservoir to a raw water main situated about 400 metres between Llyn Llygad Rheidol Reservoir and Bontgoch WTW. This pumping will need energy, specifically from generators, which require fuel and produce carbon emissions. Overall, this has been assessed as having a minor negative impact regarding this objective.</p> | -                                                                                                       |
|                            |                                                                                                                                            | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p> |
|                            |                                                                                                                                            | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Effects of Construction</b><br/>The construction of this option will require the movement of plant and materials (e.g. pumps, pipes etc) to site, which will require fuel and result in carbon emissions. It is assumed approximately 400m of pipeline would be required to implement this option (with embodied carbon). There would also be carbon embodied within the temporary infrastructure. However, it is possible that these materials could be hired or used from existing Welsh Water/contractor stores and could subsequently be used elsewhere once the temporary infrastructure has been removed from site. This would lessen the effect of carbon embodied in materials.</p> <p>Overall, a minor negative effect has been determined against this objective.</p>                                                                                                                                                                                                                                                                                                                                   | -                                                                                                       |

| SEA Topics and Objectives         |                                                                                                                            |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| SEA Topic                         | SEA Objective                                                                                                              | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Residual significance of effect (likely to remain after reasonable mitigation)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Air and Climate                   | 6.2 To reduce carbon emissions and to adapt to future changes in climate.                                                  | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Operation</b><br>Energy requirements and carbon emissions have not been quantified by Welsh Water for any options at this stage and therefore a qualitative assessment has been made based on the infrastructure required to implement this option.<br><br>OS mapping indicates that the land in the south of the reservoir is topographically very similar to the estimated connection point to the water main, therefore pumping is likely to be required. 5Ml/d will be pumped from the Nantymoch Reservoir to a raw water main between Llyn Llygad Rheidol Reservoir and Bontgoch WTW, a distance estimated to be approximately 400m. Pumping will require energy (in this case, in the form of generators) which require fuel and result in carbon emissions. It is assumed that pumping will only be required to abstract water from the reservoir.<br><br>UKCP22 climate change scenarios anticipate longer, hotter summers and, in turn, increases in both the frequency and duration of droughts. This option would provide Welsh Water with additional capacity to manage drought conditions and as such is considered to contribute towards climate change adaptation.<br>Overall, this option has been assessed as having a mixed minor positive and minor negative effect on this objective.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>It is assumed that the distance from abstraction to the raw water main is approximately 400m.<br>It is assumed that pumping will only be required to abstract water from the reservoir.<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                           | +                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Archaeology and Cultural Heritage | 7.1 To conserve and enhance historic assets/cultural heritage and their setting, including archaeological important sites. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>New above-ground infrastructure will be required for this option, although this will be temporary in nature. This includes pumps, generators and above ground transfer pipelines. Construction activities such as excavation may be required. The exact location of infrastructure (and, therefore, construction works) is not currently known, although it is assumed that wherever possible, Welsh Water will seek to route temporary pipelines and site temporary pumping infrastructure on existing areas of hardstanding (roads, parking areas, tracks etc) in preference to new excavations.<br><br>Heritage features in this area include Cairn 400m N of Lle'r Neuaddau (prehistoric burial cairn) and Round Barrow 290m SSW of Nant-y-Moch. It is assumed that the temporary infrastructure associated with this option (and works) would be located away from heritage features. Any impacts on the setting of features associated with construction activity would be short term in nature and, assuming good practice is followed, will not result in significant and long term effects (e.g. no above ground permanent infrastructure proposed).<br><br>Llyn Llygad Rheidol Reservoir and the downstream Nant-y-Llyn provide flow to the Afon Hengwm which then flows into Nantymoch Reservoir. These are located approximately 2km to the east of the Nantymoch Reservoir and within Upland Ceredigion, which is designated as Landscape of Outstanding Historic Interest. This landscape site includes high, open moorland which is characterised by prehistoric funerary and ritual monuments, occasional upland farms, lead mines and large numbers of deserted medieval settlements. Construction activity associated with this option would be very minor and short term in nature. In consequence, any effects on landscape and visual amenity are likely to be negligible.<br><br>Overall, a neutral effect is anticipated against this objective. | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                   |                                                                                                                            | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Effects of Operation</b><br>There are a number of scheduled monuments in the vicinity of Nantymoch Reservoir and downstream Afon Rheidol. The closest features include prehistoric round barrows, Craig y Dullfan ring cairn, Stone Circle and Round Cairns Hirnant, Cairn Circle 400m SW of Lle'r Neuaddau, Garn Lwyd Round Cairn & Standing Stone and Dinas SW of Aber-Peithnant. Given the negligible hydrological impacts on Nantymoch Reservoir and downstream Afon Rheidol (as described above), no effect on the settings of these heritage features is anticipated. Overall, a neutral effect is anticipated against this objective.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>It is assumed that temporary infrastructure (pumps, generators, pipelines, etc.) would be located away from heritage features and temporary pipelines would be routed along roads where possible.<br><br><b>Uncertainty</b><br>None |

| SEA Topics and Objectives    |                                                                                            |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                               |
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| SEA Topic                    | SEA Objective                                                                              | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Residual significance of effect (likely to remain after reasonable mitigation)                |
| Landscape and Visual Amenity | 8.1 To conserve, protect and enhance landscape and townscape character and visual amenity. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>Llyn Llygad Rheidol Reservoir and the downstream Nant-y-Llyn provide flow to the Afon Hengwm which then flows into Nantymoch Reservoir. There are no designated landscape areas in proximity to the option and any construction activity would be very minor and short term in nature. In consequence, any effects on landscape and visual amenity are likely to be neutral.<br><br><b>Effects of Operation</b><br>New above-ground infrastructure will be required for this option, although this will be temporary in nature. This includes above ground transfer pipelines approximately 400m in length. It is assumed that the above ground pipelines would be constructed using plastic (Medium or High Density Polyethylene), which is typically coloured bright blue for water supply purposes, and where routed alongside roads, would require the necessary signage and traffic cones to meet health and safety requirements. Nantymoch Reservoir lies within the Southern Cambrian mountains and there is the potential for the above ground infrastructure to temporarily affect local landscape character and the visual amenity of recreational receptors in this area.<br><br>The EAR has concluded that the proposed temporary abstraction will have negligible hydrological impacts on water levels in the reservoir (reduction in approximately 3.6% of the total storage capacity) and downstream flow regime in the Afon Rheidol (no reduction in flows assuming the statutory compensation flow from Nantymoch reservoir would continue in drought conditions). For these reasons, it is considered that the abstraction effects on water level in the reservoir or downstream flow regime in the Afon Rheidol are unlikely to be noticeable.<br><br>Overall, this option has been assessed as having a minor negative effect on this objective due to absence of any designated landscape areas. |                                                                                               |
|                              |                                                                                            | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None |



|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                           |                  |
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| Option Name:        | 8203-3 Llyn Craig y Pistyll                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Water Resource Zone Name: | North Ceredigion |
| Option Description: | The proposed scheme is to reduce the compensation flow normally required from the reservoir by 20%, to conserve reservoir storage and help ensure there is enough resource to maintain essential public water supplies in the North Ceredigion area throughout a severe drought without the need for more extreme customer side measures. That is, reduce the compensation release by up to 0.36 Ml/d. A maximum reduction from 1.81 Ml/d to 1.45 Ml/d. This drought permit could be applied for during the period July to December, inclusive. |                           |                  |

| SEA Topics and Objectives     |                                                                                                                                                                                                                                                                                                       | Assessment of option |                                                         |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                |
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| SEA Topic                     | SEA Objective                                                                                                                                                                                                                                                                                         | Effect Type          | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Residual significance of effect (likely to remain after reasonable mitigation) |
| Biodiversity, flora and fauna | 1.1 To protect and enhance designated sites and their qualifying features, biodiversity, priority habitats and species ecological functions, capacity and habitat connectivity and to protect and enhance natural capital and the biodiversity and ecosystem services that contribute to the economy. | Negative             | Small                                                   | High                | Short-term | Temporary  | Medium              | Medium                          | <p><b>Effects of Construction</b><br/>Additional infrastructure is not required for the implementation of this option. Therefore no effects on biodiversity from construction would occur. A neutral effect has therefore been determined against this objective.</p> <p><b>Effects of Operation</b><br/>This option would result in a moderate impacts to river flows (up to 20% reduction) in the Afon Leri at any time of year the option is implemented. The risks to river habitats include moderate risk of changes to flow hydraulics and minor risks to connectivity and usable habitat variability as a result of the hydrological impacts of reduced river flows (e.g. decreased wetted width, depth, and flow velocity).</p> <p>The implementation of the drought permit is unlikely to result in significant changes to the splash zone and humidity around the waterfall features at Craig Y Pistyll and at Gwaun Troed-rhiw-seiri a Llyn Mynydd-gorddu SSSIs. While some changes may occur, they are expected to be minimal and manageable, thus preserving the overall ecological integrity of this protected area. The impact on the SSSIs is assessed as minor negative.</p> <p>The EAR identifies potential negative effects on fish in the impacted reach of the Afon Leri from reduced flows. Atlantic salmon may experience moderate negative impacts during their migration from October to December, with lower flows affecting habitat quality for juveniles. Afon Leri is a key migratory route for sea trout. The drought permit may significantly affect their lifecycle due to reduced flows that could degrade habitats. The impact on sea trout is assessed as moderate negative, short-term, and reversible.</p> <p>Eels migrate downstream during the later stages of the drought permit period, and flow reductions during this time could affect their escapement. The impact on downstream eel migration is assessed as minor negative, short-term, and reversible.</p> <p>Although an increase in prey species of otter such as fish will have a positive impact upon otter, it is unlikely to have any material effect on otter, with the exception of individuals possibly remaining within the reach longer than normal. Therefore, the impact has been assessed as negligible on otter.</p> | --                                                                             |
|                               |                                                                                                                                                                                                                                                                                                       | Positive             | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <p>Regarding WFD features, there is potential for higher sensitive species to be lost due to the reduction in flow, however, despite this potential risk, the overall macroinvertebrate community remains stable. Therefore, the macroinvertebrate component of the Afon Leri is considered to be at minor risk of short-term deterioration. The fish component on the other hand is considered to be at moderate risk of short-term deterioration due to hydrological variability in the river.</p> <p>Overall, a moderate negative effect has been determined against this objective due to the potential for adverse effects on the designated species and WFD status receptors.</p> <p><b>Mitigation</b><br/>There are several mitigation measures that are appropriate. These are detailed in the EAR and include, fish pass improvements or easement, design improvements or easements, targeted installation of woody debris, gravel washing, predatory bird deterrence, poaching deterrence, temporary reversion to licensed compensation flow, aeration deployment and fish rescue. Further information on potential mitigation actions is provided in Appendix C to the Llyn Craig y Pistyll EAR.</p> <p><b>Assumptions</b><br/>When assessing the impact on fish, it was assumed that populations of the relevant species are present in the hydrological zone of influence and that worst-case impacts would occur.</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | N/A                                                                            |

| SEA Topics and Objectives   |                                                                                                                                     |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                |  |
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| SEA Topic                   | SEA Objective                                                                                                                       | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Residual significance of effect (likely to remain after reasonable mitigation) |  |
|                             | 1.2 To avoid and, where required, manage the introduction or spread of invasive and non-native species (INNS).                      | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. Therefore there is no risk of transfer or spread of INNS during construction.<br><br><b>Effects of Operation</b><br>No INNS features that are sensitive or susceptible to drought permit impacts have been identified. Therefore no effects have been assessed for this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | N/A                                                                            |  |
|                             |                                                                                                                                     | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | N/A                                                                            |  |
| Population and human health | 2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing). | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. Therefore, no effects on health and wellbeing from construction would occur. A neutral effect has therefore been determined against this objective.<br><br><b>Effects of Operation</b><br>The operation of this option will provide a gain in deployable output of 0.36 Ml/d within the North Ceredigion area, which will help to ensure that water supply is maintained during periods of drought. Those living, working or visiting the area are unlikely to be directly disturbed by the scheme.<br><br>Overall, this option has been assessed as having a minor positive effect on this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0                                                                              |  |
|                             |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | +                                                                              |  |
|                             | 2.2 To protect and enhance the economic                                                                                             | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>As there is no construction associated with this option, there will be no effect on the availability of water for people and visitors to maintain economic activity in times of drought. Further, it is not anticipated that the option would generate any economic benefits (e.g. job creation or investment in supply chains). A neutral effect has therefore been determined against this objective.<br><br><b>Effects of Operation</b><br>This option will provide an additional yield of 0.36 Ml/d. This would help to meet the water supply needs of homes, businesses and visitors in the area during periods of drought, supporting the local and regional economy. Consistent with the definitions of significance used in the assessment, positive effects in this regard are predicted to be minor positive.<br><br>The EAR has identified that the implementation of the option would reduce the wetted width and depth in the Afon Leri which may influence water-dependent activities. Llyn Craig-y-Pistyll and Afon Leri hold wild trout populations. Any reduction in wetted width and depth may influence water dependent recreational activities. However, water levels will be naturally low in times of drought and impacts will be temporary in nature. Therefore | 0                                                                              |  |

| SEA Topics and Objectives        |                                                                                                                                                              |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                |
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| SEA Topic                        | SEA Objective                                                                                                                                                | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Residual significance of effect (likely to remain after reasonable mitigation) |
|                                  | and social needs of the local community.                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <p>dependent recreational activities. However, water levels will be naturally low in times of drought and impacts will be temporary in nature. Therefore, the effect on recreational opportunities is anticipated to be negligible.</p> <p>Overall, this option has been assessed as having a neutral negative and minor positive effect on the objective.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                    | +                                                                              |
| Material assets and resource use | 3.1 To minimise resource use and waste production.                                                                                                           | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Effects of Construction</b><br/>As no additional infrastructure is required for the implementation of the option, no effects from construction would occur. A neutral effect has therefore been determined against this objective.</p> <p><b>Effects of Operation</b><br/>Operation of the option will require no additional energy use or resources, over and above those currently used to treat water. A neutral effect is therefore anticipated against this objective.</p>                                                                                                                                                                                                                                                                                                                     | 0                                                                              |
|                                  |                                                                                                                                                              | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0                                                                              |
| Water                            | 4.1 To protect and enhance the quality of surface, groundwater, estuarine and coastal water and help achieve the objectives of the Water Framework Directive | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <p><b>Effects of Construction</b><br/>Additional infrastructure is not required for the implementation of this option. Therefore, no effects on the quality of surface, groundwater, estuarine and coastal water from construction would occur. A neutral effect has therefore been determined against this objective.</p> <p><b>Effects of Operation</b><br/>Two permits discharge either directly to the Afon Leri in Reach 1 or to watercourses within 500m of the river. The permit conditions do not relate to sanitary water quality and are for very low flow rates. As such the change in dilution associated with the drought permit is considered to have negligible impact on the impact of this water quality pressure. A neutral effect is therefore anticipated against this objective.</p> | 0                                                                              |
|                                  |                                                                                                                                                              | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0                                                                              |

| SEA Topics and Objectives |                                                                                                                                      |             | Assessment of option                                    |                     |             |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                |  |
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| SEA Topic                 | SEA Objective                                                                                                                        | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration    | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Residual significance of effect (likely to remain after reasonable mitigation) |  |
| Water                     | 4.2 To avoid negative impact on surface and groundwater levels and flows, including when this impacts on habitats and/or navigation. | Negative    | Small                                                   | High                | Short-term  | Temporary  | Medium              | Medium                          | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. Therefore, no effects on surface and groundwater levels and flows from construction would occur. A neutral effect has therefore been determined against this objective.<br><br><b>Effects of Operation</b><br>The operation of this option will have a moderate negative impact on river flows throughout the impacted reach of the Afon Leri at any time throughout the year that the drought permit is implemented (July to December, inclusive). The EAR assessed the risk to river habitats a moderate due to changes in flow hydraulics. This would result in moderate changes to flow velocity, channel and wetted perimeter and likely at a reach-scale in the upper to mid reaches given the existing morphology and limited inflows. Additionally, minor negative impacts related to connectivity and changes in the variability of usable habitats have been identified in the reach. | --                                                                             |  |
|                           |                                                                                                                                      | Positive    | Small                                                   | High                | Short-term  | Temporary  | Low                 | Medium                          | The impact on the Llyn Craig y Pistyll Reservoir would be a marginal increase in levels / storage, relative to the position without the drought permit, due to the reduced compensation outflow which would help to conserve water in storage. The length of time of shoreline exposure would be slightly shorter, compared to the baseline drought scenario, as the reservoir would reach top water level slightly earlier during the winter refill period. This would be considered as a minor positive impact.<br><br>Overall, a moderate negative effect and minor positive effect has been determined against this objective.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                            | +                                                                              |  |
|                           | 4.3 To increase water efficiency and increase resilience of Public Water Supply (PWS) and natural systems to droughts.               | Negative    | N/A                                                     | N/A                 | N/A         | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. Therefore no effects on water efficiency and resilience of Public Water Supply (PWS) and natural systems from construction would occur.<br><br><b>Effects of Operation</b><br>Implementing this option will result in an increase of 0.36 Ml/d in deployable output within the North Ceredigion area, thereby helping to sustain water supply during drought conditions and increasing resilience of natural systems to drought.<br><br>Overall, this option has been assessed as having a minor positive effect on this objective.                                                                                                                                                                                                                                                                                                                                                             | N/A                                                                            |  |
|                           |                                                                                                                                      | Positive    | Small                                                   | Medium              | Medium-term | Temporary  | Low                 | Medium                          | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | +                                                                              |  |

| SEA Topics and Objectives  |                                                                                                                                                                                         |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                               |
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| SEA Topic                  | SEA Objective                                                                                                                                                                           | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Residual significance of effect (likely to remain after reasonable mitigation)                |
| Soil, geology and land use | 5.1 To contribute to sustainable use of land and protect and enhance the functionality and quality of soils, including the protection of high-grade agricultural land and geodiversity. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. Therefore, no effects on soil, geology and land use from construction would occur.<br><br><b>Effects of Operation</b><br>This option would result in reduced water levels in Afon Leri which could lead to drying out of adjacent wetland soils. However, it is noted that the option would be implemented during drought conditions and therefore it is considered that there will be no additional effects on wetland/marginal soils as a result of the option.<br><br>Although a compensation flow would be maintained throughout operation, this would be reduced from 1.81 Ml/d to 1.45 Ml/d. This would ensure that flows in the Afon Leri are maintained at some level; however, the flows could be reduced by up to 20% of the existing levels in low flows in the reach, causing a reduction in wetted area. This could affect wetland soils marginal to the Afon Leri, but has been assessed as negligible. There are no designated wetland sites or upland soils near the river and therefore the anticipated effect would be neutral.<br><br>Overall, a neutral effect is determined against this objective. | 0                                                                                             |
|                            |                                                                                                                                                                                         | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None |
| Air and Climate            | 6.1 To reduce and minimise air emissions.                                                                                                                                               | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. As a result, no air emissions from construction would occur. A neutral effect has therefore been determined against this objective.<br><br><b>Effects of Operation</b><br>This option will involve changing release rates from the reservoir and no additional air emissions over existing operational emissions are anticipated. There are no AQMAs within 500m of Llyn Craig y Pistyll or the impacted reaches. A neutral effect is expected with regard to this objective.<br><br>Overall, this option has been assessed as having a neutral impact on the objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0                                                                                             |
|                            |                                                                                                                                                                                         | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None |
|                            |                                                                                                                                                                                         | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>No construction is required to implement this option, therefore a neutral effect has been assessed against this objective.<br><br><b>Effects of Operation</b><br>Operational energy requirements and associated carbon emissions have not been quantified by Welsh Water for any options at this stage and therefore a qualitative assessment has been made based on the infrastructure required to implement this option.<br><br>This option will involve a change to the release rate from the reservoir, which is assumed to be by gravity and penstock arrangement. Water would be treated through existing treatment works and infrastructure. Energy required for treatment and distribution would therefore be unchanged from the current operation and no additional emissions of greenhouse gases are anticipated.                                                                                                                                                                                                                                                                                                                                                                               | 0                                                                                             |

| SEA Topics and Objectives         |                                                                                                                            |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                |
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| SEA Topic                         | SEA Objective                                                                                                              | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Residual significance of effect (likely to remain after reasonable mitigation) |
| Air and Climate                   | 6.2 To reduce carbon emissions and to adapt to future changes in climate.                                                  | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | UKCP22 climate change scenarios anticipate longer, hotter summers and, in turn, increases in both the frequency and duration of droughts. This option would provide Welsh Water with additional capacity to manage drought conditions and as such is considered to contribute towards climate change adaptation.<br><br>Overall, a minor positive effect has been assessed against this objective in operation.<br><br><b>Mitigation</b><br>None.<br><br><b>Assumptions</b><br>None.<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | +                                                                              |
| Archaeology and Cultural Heritage | 7.1 To conserve and enhance historic assets/cultural heritage and their setting, including archaeological important sites. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. Therefore, no effects on archaeology and cultural heritage from construction would occur.<br><br><b>Effects of Operation</b><br>The archaeology in the area mostly comprises the remains of metal mines. There are three listed buildings adjacent to the Afon Leri towards the end of the reach; Y Felin, Outbuilding at Y Felin and Mill at Y Felin Grade II listed buildings. A reduction in the flow of the Afon Leri as a result of the option is not anticipated to have a detrimental effect on heritage assets as these contain no water dependant features and any effects on setting would be temporary and reversible. A neutral effect is therefore anticipated against this objective.                                                                                                                                                                                                                                                                                                                                                                               | 0                                                                              |
|                                   |                                                                                                                            | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | N/A                                                                            |
| Landscape and                     | 8.1 To conserve, protect and enhance landscape and townscape.                                                              | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. Therefore no impacts on landscape and visual amenity from construction would occur. A neutral effect has therefore been determined against this objective.<br><br><b>Effects of Operation</b><br>The EAR has concluded that flows in the Afon Leri during a drought will be low. The reduction of water levels during drought could temporarily affect the visual amenity. However, impacts are likely to be temporary. Flows during drought conditions will naturally be low therefore the implementation of the drought permit is not expected to lead to any further landscape and visual amenity impacts.<br><br>The impact on Llyn Craig y Pistyll Reservoir would be a marginal increase in levels / storage, relative to the position without the drought permit, due to the reduced compensation outflow which would help to conserve water in storage. The length of time of shoreline exposure would be slightly shorter, compared to the baseline drought scenario, as the reservoir would reach top water level slightly earlier during the winter refill period. The | 0                                                                              |

| SEA Topics and Objectives |                                                  |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                            |                                                                                |
|---------------------------|--------------------------------------------------|-------------|---------------------------------------------------------|---------------------|------------|------------|---------------------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| SEA Topic                 | SEA Objective                                    | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                 | Residual significance of effect (likely to remain after reasonable mitigation) |
| Visual Amenity            | land and townscape character and visual amenity. | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | reservoir is not located in an area designated for landscape value therefore a neutral effect is assessed.<br><br>Overall, this option has been assessed as having a neutral impact on the objective.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None | 0                                                                              |

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                           |               |
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| Option Name:        | 8206-1 Crowhill                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Water Resource Zone Name: | Pembrokeshire |
| Option Description: | <p>The proposed scheme is to lower the river flow at which abstraction at Crowhill must cease. For the purpose of this description and assessment, we will call this river flow the 'hands-off flow' (HoF). It is the river flow immediately downstream of the abstraction at Crowhill. The option would seek to reduce the HoF by 20%, that is a reduction of 7.52MI/d and would reduce the limiting flow set in the abstraction licence from 37.58MI/d to 30.06MI/d. The option would be applied for during the period June to November, inclusive. A definition (equivalent flow) to be agreed with NRW for what the reduced HoF at Crowhill relates to in terms of a flow at NRW's Treffgarne flow gauging station; a proportionate Treffgarne flow of approximately 23.45 MI/d is suggested pending fuller analysis. All the other conditions of the abstraction licence remaining unchanged.</p> |                           |               |

| SEA Topics and Objectives     |                                                                                                                                                                                                                                                                                                       | Assessment of option |                                                         |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                |
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| SEA Topic                     | SEA Objective                                                                                                                                                                                                                                                                                         | Effect Type          | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Residual significance of effect (likely to remain after reasonable mitigation) |
| Biodiversity, flora and fauna | 1.1 To protect and enhance designated sites and their qualifying features, biodiversity, priority habitats and species ecological functions, capacity and habitat connectivity and to protect and enhance natural capital and the biodiversity and ecosystem services that contribute to the economy. | Negative             | Small                                                   | High                | Short-term | Temporary  | Medium              | High                            | <p><b>Effects of Construction</b><br/>Additional infrastructure is not required for the implementation of this option. Therefore, no effects on biodiversity from construction would occur.</p> <p><b>Effects of Operation</b><br/>This option would result in a moderate impacts to river flows (up to 20% reduction) in the Western Cleddau River during the summer period. The risks to river habitats include minor risk of changes in flow hydraulics as a result of the hydrological impacts of reduced river flows (e.g. decreased wetted width, depth, and flow velocity).</p> <p>The impacted Reach (Western Cleddau River) is designated under the Afonydd Cleddau / Cleddau Rivers SAC and Western Cleddau River SSSI. The HRA identified potential LSEs due to several pathways in which the drought permit can impact qualifying features of the SAC, which include macrophyte habitats and brook and river lamprey and bullhead fish species. The HRA Stage 2 Appropriate Assessment concluded the option would not have an adverse impact on the integrity of the European site, subject to implementation of the proposed mitigation measures. The EAR concluded moderate impacts on the SAC and SSSI.</p> <p>The moderate reduction in river flows is anticipated to result in moderate impacts on brook and river lamprey due to hindered migration and increased predation risk and reduced recruitment. Although minor hydrological effects from the drought order in October to November are unlikely to significantly delay the downstream migration of post-metamorphic sea lamprey juveniles, the overall impact on sea lamprey is still assessed as moderate negative, short-term, and reversible.</p> |                                                                                |
|                               |                                                                                                                                                                                                                                                                                                       | Positive             | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <p>The EAR also concluded minor negative impacts on Atlantic salmon, Brown/sea trout, Bullhead and European eel due to impacts on migration and reduction/loss of juvenile habitat and gravel spawning areas. These effects are anticipated to short-term, temporary and reversible. Reduced flow poses risks to WFD features and the EAR concluded minor negative impacts on macrophytes and macroinvertebrates and moderate impacts on fish.</p> <p>Overall, a moderate negative impact has been determined against this objective due to the potential for adverse effects on the SAC and SSSI.</p> <p><b>Mitigation</b><br/>There are several mitigation measures that are appropriate. These are detailed in the EAR and include, fish pass improvements or easement, design improvements or easements, targeted installation of woody debris, gravel washing, predatory bird deterrence, poaching deterrence, temporary reversion to licensed compensation flow, aeration deployment and fish rescue. Further information on potential mitigation actions is provided in Appendix C to the Crowhill EAR. The Appropriate Assessment undertaken in 2022 for this option sets out further mitigation specific to qualifying features of the SAC.</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                  | N/A                                                                            |
|                               | 1.2 To avoid and, where required, manage the introduction or spread of                                                                                                                                                                                                                                | Negative             | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <p><b>Effects of Construction</b><br/>Additional infrastructure is not required for the implementation of this option. Therefore there is no risk of transfer or spread of INNS during construction. A neutral effect has therefore been determined against this objective.</p> <p><b>Effects of Operation</b><br/>No INNS features that are sensitive or susceptible to drought permit impacts have been identified. A neutral effect has therefore been determined against this objective.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | N/A                                                                            |



| SEA Topics and Objectives   |                                                                                                                                     | Assessment of option |                                                         |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                |
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| SEA Topic                   | SEA Objective                                                                                                                       | Effect Type          | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Residual significance of effect (likely to remain after reasonable mitigation) |
|                             | Introduction or spread of invasive and non-native species (INNS).                                                                   | Positive             | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | N/A                                                                            |
| Population and human health | 2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing). | Negative             | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. Therefore no effects on health and wellbeing from construction would occur. A neutral effect has therefore been determined against this objective.<br><br><b>Effects of Operation</b><br>The operation of this option will provide a gain in deployable output of 7.52Ml/d within the Pembrokeshire Water Resource Zone (WRZ), which will help to ensure that water supply is maintained during periods of drought. Those living, working or visiting the area are unlikely to be directly disturbed by the scheme.<br><br>Overall, this option has been assessed as having a major positive effect on this objective.                                                                   | 0                                                                              |
|                             |                                                                                                                                     | Positive             | Small                                                   | High                | Short-term | Temporary  | High                | Medium                          | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | +++                                                                            |
|                             | 2.2 To protect and enhance the economic and social needs of the local community.                                                    | Negative             | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>The option requires no construction and therefore its implementation is not expected to result in any effects on economic and social needs. Further, it is not anticipated that the option would generate any economic benefits (e.g. job creation or investment in supply chains). A neutral effect has therefore been determined against this objective.<br><br><b>Effects of Operation</b><br>This option will provide an additional yield of 7.52 Ml/d. This would help to meet the water supply needs of homes, businesses and visitors in the area during periods of drought, supporting the local and regional economy. This option would result in a major yield of drinking water at times of drought and therefore a major positive impact has been determined. | 0                                                                              |
|                             |                                                                                                                                     | Positive             | Small                                                   | High                | Short-term | Temporary  | High                | Medium                          | The EAR has identified that the implementation of the option would reduce the wetted width and depth in the Western Cleddau which may influence water-dependent activities. However, water levels will be naturally low in times of drought and impacts will be temporary in nature.<br><br>Overall, this option has been assessed as having a major positive effect on the objective.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                 | +++                                                                            |

| SEA Topics and Objectives        |                                                                                                                                                              |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                |  |
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| SEA Topic                        | SEA Objective                                                                                                                                                | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Residual significance of effect (likely to remain after reasonable mitigation) |  |
| Material assets and resource use | 3.1 To minimise resource use and waste production.                                                                                                           | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>As no additional infrastructure is required for the implementation of the option, no effects from construction would occur. A neutral effect has therefore been determined against this objective.<br><br><b>Effects of Operation</b><br>Operation of the option will require no additional energy use or resources, over and above those currently used to treat water. The option will make use of existing infrastructure resulting in a minor positive effect on this objective.<br><br>Overall, this option has been assessed as having a minor positive effect on the objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0                                                                              |  |
|                                  |                                                                                                                                                              | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | +                                                                              |  |
| Water                            | 4.1 To protect and enhance the quality of surface, groundwater, estuarine and coastal water and help achieve the objectives of the Water Framework Directive | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. Therefore no effects on the quality of surface, groundwater, estuarine and coastal water from construction are anticipated.<br><br><b>Effects of Operation</b><br>The moderate reductions in flow have the potential to impact water quality in the impacted reach of the Western Cleddau. Water quality monitoring data were available for one site within the impacted reach. Reported water quality was consistent with 'High' WFD status for dissolved oxygen and predominantly 'High' for ammonia, although there were a few occasions of samples consistent with 'Good' and 'Moderate' between 2015-2019 and one sample in 2024. There is no apparent seasonality for either of the parameters. Review of the discharge permit register identified that there are two Combined Sewer Overflows (CSOs) within the impacted reach which have been assessed as collectively presenting a minor risk to water quality at times that they may be spilling during the implementation of the drought order. | -                                                                              |  |
|                                  |                                                                                                                                                              | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | Overall, a minor negative effect is assessed for water quality.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0                                                                              |  |
|                                  | 4.2 To avoid negative impact on surface and groundwater levels and                                                                                           | Negative    | Small                                                   | High                | Short-term | Temporary  | Medium              | Medium                          | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. Therefore, no effects on surface and groundwater levels and flows would occur from construction.<br><br><b>Effects of Operation</b><br>The operation of this option will have a moderate negative impact on river flows in relatively short section of the Western Cleddau due to reductions of up to 20% throughout the reach during the summer period, with minor reductions during the autumn/winter period. The EAR assessed the risk to river habitats as negligible to minor, with minor impacts identified due to changes in flow hydraulics. This would result in minor, localised changes to the velocity regime as the reach is ponded behind a weir at the tidal limit which mitigates flow hydraulic impacts. As a result, no changes to usable habitat are anticipated.<br><br>Overall, a moderate negative effect is concluded due to the potential for moderate reductions in flow, although any effects would be short-term and                                                            | --                                                                             |  |

| SEA Topics and Objectives  |                                                                                                                                                                                         |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------------------------------------------------|---------------------|------------|------------|---------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| SEA Topic                  | SEA Objective                                                                                                                                                                           | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Residual significance of effect (likely to remain after reasonable mitigation) |
| Water                      | flows, including when this impacts on habitats and/or navigation.                                                                                                                       | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | Overall, a moderate negative effect is considered due to the potential for moderate reductions in flow, although any effects would be short-term and temporary only if the drought order was implemented during the summer period, otherwise effects would be minor.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                     | N/A                                                                            |
|                            | 4.3 To increase water efficiency and increase resilience of Public Water Supply (PWS) and natural systems to droughts.                                                                  | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. Therefore, no effects on water efficiency and resilience of Public Water Supply (PWS) from construction would occur.<br><br><b>Effects of Operation</b><br>Implementing this option will result in a benefit of 7.52 Ml/d within the Pembrokeshire Water Resource Zone (WRZ), thereby helping to sustain water supply during drought conditions and increasing resilience of natural systems to drought. Consistent with the criteria for assessing significance, this is assessed a major positive effect on this objective.                                                                                                                                                              | N/A                                                                            |
|                            |                                                                                                                                                                                         | Positive    | Small                                                   | High                | Short-term | Temporary  | High                | Medium                          | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | +++                                                                            |
| Soil, geology and land use | 5.1 To contribute to sustainable use of land and protect and enhance the functionality and quality of soils, including the protection of high-grade agricultural land and geodiversity. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. Therefore, no effects on soil, geology and land use from construction would occur.<br><br><b>Effects of Operation</b><br>The operation of this option could result in moderate reductions of up to 20% in river flows throughout the reach during the summer period, with minor reductions during the autumn/winter period. Conceivably, this could lead to drying out of adjacent wetland soils. However, it is noted that the option would be implemented during drought conditions and therefore it is considered that there will be no additional effects on wetland/marginal soils as a result of the option. For this reason, a neutral effect is determined against this objective. | 0                                                                              |
|                            |                                                                                                                                                                                         | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | N/A                                                                            |

| SEA Topics and Objectives |                                                                           |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                |
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| SEA Topic                 | SEA Objective                                                             | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Residual significance of effect (likely to remain after reasonable mitigation) |
| Air and Climate           | 6.1 To reduce and minimise air emissions.                                 | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. As a result, no air emissions from construction would occur.<br><br><b>Effects of Operation</b><br>This option will involve a reduction in the HoF condition at the Crowhill intake by 20%, from 37.58 ML/d to 30.06 ML/d. No additional air emissions over existing operational emissions are anticipated.<br><br>Therefore, a neutral effect has been determined against this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0                                                                              |
|                           |                                                                           | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | N/A                                                                            |
| Air and Climate           | 6.2 To reduce carbon emissions and to adapt to future changes in climate. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option and as a result no carbon emissions from construction would occur. A neutral effect has therefore been determined against this objective.<br><br><b>Effects of Operation</b><br>This option involves the reduction of the abstraction licence 'hands-off flow' (HoF) by 20%. Water would be treated and distributed using existing infrastructure and energy consumed during the treatment process (and associated greenhouse gas emissions) is not considered to be significant compared to day to day operation of the WTW. No further energy consumption would arise from new infrastructure. Overall, a neutral negative effect is anticipated in this regard.<br><br>UKCP22 climate change scenarios anticipate longer, hotter summers and, in turn, increases in both the frequency and duration of droughts. This option would provide Welsh Water with additional capacity to manage drought conditions and as such is considered to contribute towards climate change adaptation. | 0                                                                              |
|                           |                                                                           | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | Overall, this option has been assessed as having a minor positive and a neutral negative effect on this objective.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | +                                                                              |
| Archaeology and Cultural  | 7.1 To conserve and enhance historic assets/cultural heritage             | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. Therefore no impacts on archaeology and cultural heritage from construction would occur. A neutral effect has therefore been determined against this objective.<br><br><b>Effects of Operation</b><br>There are several listed buildings in proximity to the river reach including two Grade II* bridges crossing the Western Cleddau - The Old Bridge and New Bridge and four lamp standards. There is also the Haverfordwest Castle scheduled monument c.120m away, however, this is considered to be sufficiently screened to avoid any effects.<br><br>A reduction in the flow of the Afon Western Cleddau as a result of the option is not anticipated to have a detrimental effect on heritage assets as these contain no water dependant features and any effects on setting would be temporary, short-term and reversible. A neutral effect is therefore                                                                                                                          | 0                                                                              |

| SEA Topics and Objectives    |                                                                                            |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                               |
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| SEA Topic                    | SEA Objective                                                                              | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Residual significance of effect (likely to remain after reasonable mitigation)                |
| Cultural Heritage            | and their setting, including archaeological important sites.                               | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | anticipated against this objective.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | N/A                                                                                           |
| Landscape and Visual Amenity | 8.1 To conserve, protect and enhance landscape and townscape character and visual amenity. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. Therefore no effects on landscape and visual amenity from construction would occur.<br><br><b>Effects of Operation</b><br>The EAR has concluded that flows in the Western Cleddau during a drought will be low and the drought order would result in moderate reductions of up to 20% in river flows if implemented during summer, with minor reductions anticipated for the autumn/winter period. The reduction of water levels during drought could temporarily affect the visual amenity. However, impacts are likely to be temporary. Flows during drought conditions will naturally be low therefore the implementation of the drought permit is not expected to lead to any further landscape and visual amenity impacts. The impacted reach is short in length and not within any designated landscape areas. Consequently, a neutral effect has been assessed. | 0                                                                                             |
|                              |                                                                                            | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None |

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                           |               |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------|
| Option Name:        | 8206-7 Llys y Fran                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Water Resource Zone Name: | Pembrokeshire |
| Option Description: | The proposed drought permit will seek to reallocate 382 MI (40%) of freshet reservation (955 MI) in Llys y Fran Reservoir to public water supply utilisation. This will conserve storage and help ensure there is enough resource to maintain essential public water supplies throughout a severe drought without the need for more extreme customer side measures. The proposed drought permit assumes that at least 382 MI of the annual allocation to freshet use will not have been discharged (at Natural Resources Wales request) before the commencement of the drought permit. The permit will also help improve the prospect of reservoir recovery over the winter. |                           |               |

| SEA Topics and Objectives     |                                                                                                                                                                                                                                                                                                       | Assessment of option |                                                         |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------------------------------------------|---------------------|------------|------------|---------------------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| SEA Topic                     | SEA Objective                                                                                                                                                                                                                                                                                         | Effect Type          | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Residual significance of effect (likely to remain after reasonable mitigation) |
| Biodiversity, flora and fauna | 1.1 To protect and enhance designated sites and their qualifying features, biodiversity, priority habitats and species ecological functions, capacity and habitat connectivity and to protect and enhance natural capital and the biodiversity and ecosystem services that contribute to the economy. | Negative             | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | <b>Effects of Construction</b><br>The option would make use of existing infrastructure and would not require construction of new infrastructure.<br><b>Effects of Operation</b><br>Operation of the option involves retaining part of the freshet bank volume within the reservoir for public supply, rather than releasing it to the downstream watercourse. This has the potential to reduce flows in the Afon Syfynwy downstream of Llys-y-Fran Reservoir outfall and its continuation as the Eastern Cleddau. The Afon yd Cleddau / Cleddau Rivers SAC / Eastern Cleddau Rivers SSSI is designated for Ranunculus community habitat, Potamogeton berchtoldii x P. polygonifolius and a range of important fish species, which are sensitive to flow and level changes in the Afon Syfynwy and Eastern Cleddau.<br>The EAR concluded negligible hydrological impacts in both the Afon Syfynwy and Eastern Cleddau as sufficient volume would be left in the freshet bank for stepped freshet releases for fisheries management purposes on several occasions. | 0                                                                              |
|                               |                                                                                                                                                                                                                                                                                                       | Positive             | Small                                                   | High                | Short-term | Temporary  | Low                 | High                            | The HRA identifies that effects are not anticipated on the SAC, other than limiting the number of freshet releases that could take place whilst the option is being implemented. However, as up to three freshet releases could still be made, any impacts on flows and associated effects on biodiversity are expected to be negligible. These releases would be for fisheries management purposes. The EAR completed for this option concluded that implementation would result in negligible effects on species, including fish, macrophytes, mammals, phytobenthos and macroinvertebrate. For these reasons, a neutral effect has been determined against this objective.<br><b>Mitigation</b><br>None<br><b>Assumptions</b><br>None<br><b>Uncertainty</b><br>The total number of freshet releases made during operation is not yet certain.                                                                                                                                                                                                                 | 0                                                                              |
|                               | 1.2 To avoid and, where required, manage the introduction or spread of invasive and non-native species (INNS).                                                                                                                                                                                        | Negative             | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>The option requires no construction and therefore its implementation is not expected to result in the introduction or spread of INNS.<br><b>Effects of Operation</b><br>This option involves using 40% of the freshet bank for public water supply and limiting the number of freshet releases that could take place. It is not anticipated that there will be the introduction or spread of INNS during this process. No effect has been assessed for INNS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | N/A                                                                            |
|                               |                                                                                                                                                                                                                                                                                                       | Positive             | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><b>Assumptions</b><br>None<br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | N/A                                                                            |

| SEA Topics and Objectives     |                                                                                                                                     |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                |
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| SEA Topic                     | SEA Objective                                                                                                                       | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Residual significance of effect (likely to remain after reasonable mitigation) |
| Population and human health   | 2.1 To protect and improve health and well-being (including promoting the value of the water environment for health and wellbeing). | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Construction</b><br>There is no construction required and therefore no effects are expected on water quality or clean drinking water supply. There would be no direct disturbance to local residents therefore a neutral effect is identified.<br><br><b>Effects of Operation</b><br>Operation of the option involves limiting the number of freshet releases that can take place during implementation, and using 382MI (40%) of the freshet bank for public water supply. This will help to ensure that water supply is maintained during periods of severe drought without the need for more extreme customer side measures. Those living, working or visiting the area are unlikely to be directly disturbed by the scheme.<br><br>Overall, a minor positive effect has been identified.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0                                                                              |
|                               |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | +                                                                              |
|                               | 2.2 To protect and enhance the economic and social needs of the local community.                                                    | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Effects of Construction</b><br>As there is no construction associated with this option, there will be no effect on the availability of water for people and visitors to maintain economic activity in times of drought. Further, it is not anticipated that the option would generate any economic benefits (e.g. job creation or investment in supply chains).<br><br><b>Effects of Operation</b><br>During implementation, the option will reallocate 40% of the freshet reservations in Llys y Fran for public water supply, a total of 382 MI. This would help to meet the water supply needs of homes, businesses and visitors in the area during periods of drought, supporting the local and regional economy, although, consistent with the definitions of significance used in the assessment, positive effects in this regard are expected to be minor.<br><br>The Afon Syfynwy and Eastern Cleddau provide numerous recreational opportunities including angling, canoeing, kayaking, walking, cycling and bird watching. Any reduction in wetted width and depth may influence water-dependent recreational activities. These features will be sensitive to flow and level changes, however, as the implementation of the drought permit is assessed as having negligible impacts on flow and level, a neutral effect is anticipated.<br><br>A minor positive and neutral negative effect has been identified against this objective. | 0                                                                              |
|                               |                                                                                                                                     | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | +                                                                              |
| Material assets and resources | 3.1 To minimise resource use and waste                                                                                              | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>This option will not require the use of raw materials as it will make use of existing infrastructure. A neutral effect has therefore been identified against this objective.<br><br><b>Effects of Operation</b><br>The option involves modifications to freshet bank release only and no changes to generated waste or sustainable design are envisaged. No changes in energy use are anticipated as a result of the additional water being made available in the context of current operations. The option will make use of existing infrastructure resulting in a minor positive effect on this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0                                                                              |

| SEA Topics and Objectives |                                                                                                                                                              |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                |  |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------------------------------------------------|---------------------|------------|------------|---------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|--|
| SEA Topic                 | SEA Objective                                                                                                                                                | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Residual significance of effect (likely to remain after reasonable mitigation) |  |
| and resource use          | Resource use and waste production.                                                                                                                           | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | Mitigation<br>None<br><br>Assumptions<br>None<br><br>Uncertainty<br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | +                                                                              |  |
| Water                     | 4.1 To protect and enhance the quality of surface, groundwater, estuarine and coastal water and help achieve the objectives of the Water Framework Directive | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | Effects of Construction<br>The option requires no construction and therefore, will not lead to a change in surface, groundwater, estuarine and coastal water.<br><br>Effects of Operation<br>Operation of this option would involve retaining part of the freshet bank volume within the reservoir for public supply, limiting the number of releases to the downstream watercourse. This would conserve the longevity of reservoir storage and improve the probability of reservoir winter refill, but could also influence flows in the Afon Syfynwy and Eastern Cleddau. The hydrological impact of the option has been considered in the EAR, which identified a negligible impact on river flows in the Afon Syfynwy and Eastern Cleddau for both the summer drawdown period (September) and the autumn/winter refill period (October-November) whilst the drought permit is in place. As a result, water quality in the rivers downstream is considered to be unaffected. | 0                                                                              |  |
|                           |                                                                                                                                                              | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | The impact of an additional 382 Ml storage conservation in the reservoir could result in a proportionately higher water level, reservoir surface area and reservoir wetted perimeter. This could potentially improve reservoir water quality, including with respect to the quality of the compensation water released. A minor positive effect has been assessed in this regard, however, this assessment is uncertain.<br><br>Mitigation<br>None<br><br>Assumptions<br>None<br><br>Uncertainty<br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | +                                                                              |  |
|                           | 4.2 To avoid negative impact on surface and                                                                                                                  | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | Effects of Construction<br>The option requires no construction and therefore will not lead to a change in surface, groundwater, estuarine and coastal water.<br><br>Effects of Operation<br>Operation of this option would involve retaining part of the freshet bank volume within the reservoir for public supply, limiting the number of releases to the downstream watercourse. This would conserve the longevity of reservoir storage and improve the probability of reservoir winter refill, but could also influence flows in the Afon Syfynwy and Eastern Cleddau. The hydrological impact of the option has been considered in the EAR, which identified a negligible impact on river flows in the Afon Syfynwy and Eastern Cleddau for both the summer drawdown period (September) and the autumn/winter refill period (October-November) whilst the drought permit is in place. As a result, water quality in the rivers downstream is considered to be unaffected.  | 0                                                                              |  |



| SEA Topics and Objectives  |                                                                                                                                                                                         |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                       |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------------------------------------------------|---------------------|------------|------------|---------------------|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| SEA Topic                  | SEA Objective                                                                                                                                                                           | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Residual significance of effect <i>(likely to remain after reasonable mitigation)</i> |
| Water                      | groundwater levels and flows, including when this impacts on habitats and/or navigation.                                                                                                | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Medium                          | <p>The impact of an additional 382 MI storage conservation in the reservoir could result in a proportionately higher water level, reservoir surface area and reservoir wetted perimeter. This is assessed as a minor positive effect, although effects in this regard are uncertain.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                 | +                                                                                     |
|                            | 4.3 To increase water efficiency and increase resilience of Public Water Supply (PWS) and natural systems to droughts.                                                                  | Negative    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <p><b>Effects of Construction</b><br/>The option requires no construction and therefore its implementation is not expected to result in any effects on water efficiency and resilience of PWS.</p> <p><b>Effects of Operation</b><br/>During implementation, the option will increase storage for public water supply by 382MI (40%). This would help to meet the water supply needs during periods of severe drought, thereby helping to sustain water supply during drought conditions and increasing resilience of natural systems to drought.</p> <p>Overall, this option has been assessed as having a minor positive effect on this objective.</p>                                                                                                                                                                                         | N/A                                                                                   |
|                            |                                                                                                                                                                                         | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | +                                                                                     |
| Soil, geology and land use | 5.1 To contribute to sustainable use of land and protect and enhance the functionality and quality of soils, including the protection of high-grade agricultural land and geodiversity. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <p><b>Effects of Construction</b><br/>The option requires no construction and therefore its implementation is not expected to result in any effects on land use or upland or wetland soils.</p> <p><b>Effects of Operation</b><br/>Retaining part of the freshet bank volume within the reservoir rather than releasing it to the downstream watercourse has the potential to reduce flows and levels in the Afon Syfynwy and Eastern Cleddau. However, as up to three freshet releases could still be made, any impacts on wetted area and soils are expected to be negligible.</p> <p>Active raised bogs are present as a qualifying feature within the Afonydd Cleddau / Cleddau Rivers SAC. The EAR specifies that the option would have no adverse effects on active raised bog as this would not be exposed to effects from operation.</p> | 0                                                                                     |
|                            |                                                                                                                                                                                         | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <p>Overall, a neutral effect has been determined against this objective.</p> <p><b>Mitigation</b><br/>None</p> <p><b>Assumptions</b><br/>None</p> <p><b>Uncertainty</b><br/>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | N/A                                                                                   |

| SEA Topics and Objectives |                                                                           |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                |
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| SEA Topic                 | SEA Objective                                                             | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Residual significance of effect (likely to remain after reasonable mitigation) |
| Air and Climate           | 6.1 To reduce and minimise air emissions.                                 | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>Additional infrastructure is not required for the implementation of this option. As a result, no air emissions from construction would occur. A neutral effect has therefore been determined against this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0                                                                              |
|                           |                                                                           | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Effects of Operation</b><br>During implementation, the option will use 385MI (about 40% of storage) for public water supply, allowing for only three freshet releases during the implementation period. The infrastructure required would therefore be unchanged from current operation and no additional air emissions over existing operational emissions are anticipated. Therefore a neutral impact has been determined against this objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | N/A                                                                            |
| Air and Climate           | 6.2 To reduce carbon emissions and to adapt to future changes in climate. | Negative    | Small                                                   | Medium              | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>The option would make use of existing infrastructure and would not require construction of new infrastructure.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0/?                                                                            |
|                           |                                                                           | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Operation</b><br>Energy requirements and carbon emission have not been quantified by Welsh Water for any options at this stage, and therefore a qualitative assessment has been made based on the infrastructure required to implement this option.<br><br>The option involves retaining part of the freshet bank volume within the reservoir for public supply, and limiting the number of freshet releases during implementation. The energy and infrastructure required is anticipated to remain unchanged from current operation and no additional emissions of greenhouse gases are anticipated, although this assessment is uncertain<br><br>UKCP22 climate change scenarios anticipate longer, hotter summers and, in turn, increases in both the frequency and duration of droughts. This option would provide Welsh Water with additional storage to manage drought conditions and as such is considered to contribute towards climate change adaptation.<br><br>Overall, this option has been assessed as having a minor positive effect on this objective. | +                                                                              |

| SEA Topics and Objectives         |                                                                                                                            |             | Assessment of option                                    |                     |            |            |                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------|---------------------------------------------------------|---------------------|------------|------------|---------------------|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| SEA Topic                         | SEA Objective                                                                                                              | Effect Type | Scale of effect – geographical &/or population affected | Certainty of effect | Duration   | Permanence | Magnitude of effect | Value / Sensitivity of receptor | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Residual significance of effect (likely to remain after reasonable mitigation) |
| Archaeology and Cultural Heritage | 7.1 To conserve and enhance historic assets/cultural heritage and their setting, including archaeological important sites. | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>There are a number of historic assets along the course of the Afon Syfynwy and Eastern Cleddau. These include Scheduled Ancient Monuments (including Llawhaden Bridge (also a Grade II* listed building), Walton Mill Rath, Knock Rath, Drim Camp and Gelly Earthworks), four Grade II listed bridges, and additional listed buildings including churches, farmhouses and Grade I Llawhaden Castle. The known designated assets are sufficiently distanced from the Afon Syfynwy to result in adverse effects to their setting. As the impacts on flow during operation have been identified as negligible, effects on heritage assets are not anticipated.<br><br>A neutral effect against this objective has therefore been determined.                                           | 0                                                                              |
|                                   |                                                                                                                            | Positive    | N/A                                                     | N/A                 | N/A        | N/A        | N/A                 | N/A                             | <b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | N/A                                                                            |
| Landscape and Visual Amenity      | 8.1 To conserve, protect and enhance landscape and townscape character and visual amenity.                                 | Negative    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | <b>Effects of Construction</b><br>The option would make use of existing infrastructure and would not require construction of new infrastructure, resulting in a neutral effect.<br><br><b>Effects of Operation</b><br>The Pembrokeshire Coast National lies less than 500m downstream of the zone of hydrological influence. The Afon Syfynwy and Eastern Cleddau are characterised by irregular meanders in a very shallow v-shaped valley. Tree cover is dense and is characterised by semi-continuous to continuous tree cover. Eastern Cleddau is very short and is surrounded by floodplains, with limited tree cover<br><br>The EAR identifies that as the flow and water level impacts are assessed as negligible in both watercourses, therefore effects on landscape and visual amenity are not anticipated. | 0                                                                              |
|                                   |                                                                                                                            | Positive    | Small                                                   | High                | Short-term | Temporary  | Low                 | Low                             | The drought option would ensure additional storage in Llys y Fran, providing a proportionately higher water level, reservoir surface area and wetted perimeter. This would have positive effects on landscape and visual amenity, however, any effect would be short-term and temporary. The option is not within a designated landscape area therefore a neutral positive effect is assessed.<br><br>No new structures will be built above-ground as a result of this option. This option has been assessed as having a neutral positive and negative effect against this objective.<br><br><b>Mitigation</b><br>None<br><br><b>Assumptions</b><br>None<br><br><b>Uncertainty</b><br>None                                                                                                                            | 0                                                                              |



T: +44 (0) 1235 75 3000

E: [info@ricardo.com](mailto:info@ricardo.com)

W: [www.ricardo.com](http://www.ricardo.com)