South West Water

Our draft
Water Resources
Management Plan

Appendix 7: SEA Environmental Report

MOTT MACDONALD

South West Water Updated Draft Water Resources Management Plan 2024 (WRMP24)

Strategic Environmental Assessment (SEA) Environmental Report

October 2023

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Strategic Environmental Assessment (SEA) Environmental Report

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A	02/08/22	K. M	-	M. R	Working Draft report
B	31/08/22	K. M	A. C	M. R	Draft report
C	29/09/22	K. M	A. C	M. R	Report for consultation
D	10/11/22	R. I	G. L	N. S /M. R	Report for consultation with amended options and updated appendices
E	21/12/22	L. O	G. L	K. M	Updated BVP
F	30/01/23	G. L	K. M	M. R	Updated Appendices to include updated BVP for consultation
G	29/09/23	G.L	C.P	M.R	Updated report for Updated dWRMP24
H	02/10/23	C.J	C.P	M.R	Updated to address SWW comments

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Contents

Tables

Figures

Abbreviations

AA	Appropriate Assessment
ACWG	All Company Working Group
AMP	Asset Management Plan
AONB	Area of Outstanding Natural Beauty
AQMA	Air Quality Management Areas
ASR	Aquifer Storage and Recovery
BAP	Biodiversity Action Plan
BVP	Best Value Plan
BNG	Biodiversity Net Gain
CFMP	Catchment Flood Management Plans
CWS	County Wildlife Sites
CPRE	Campaign for Rural England
CROW	Countryside and Rights of Way
CO_2	Carbon Dioxide
Defra	Department for Environment, Food and Rural Affairs
DFLE	Disability-Free Life Expectancy
DWMP	Drainage and Wastewater Management Plans
ER	Environmental Report (this document)
EU	European Union
GHG	Greenhouse Gas
GIS	Geographic Information System
ha	Hectares
HER	Historic Environment Record
HLS	High Level Screening

HRA	Habitats Regulations Assessment
IMD	Index of Multiple Deprivation
INNS	Invasive Non-Native Species
JNCC	Joint Nature Conservation Committee
$ktCO_2$	Kilo Tonnes of Carbon Dioxide
LNR	Local Nature Reserve
LSOA	Lower Super Output Area
LWS	Local Wildlife Sites
LULUCF	Land Use, Land-use Change, and Forestry
MCZ	Marine Conservation Zone
MPA	Marine Protection Area
NBS	Nature Based Solutions
NCLA	National Character Landscape Area
NCA	Natural Capital Assessment
NERC	Natural Environment and Rural Communities
NNR	National Nature Reserve
NO_2	Nitrogen Dioxide
NPPF	National Planning Policy Framework
NRN	Nature Recovery Network
PERT	Poole Effluent Recycling & Transfer
PM	Particulate Matter
RBD	River Basin District
RBMP	River Basin Management Plan
RWRP	Regional Water Resource Plan
SAC	Special Areas of Conservation
SEA	Strategic Environmental Assessment
SPA	Special Protection Area
SRO	Strategic Resource Option
SoR	Statement of Response
SSSI	Sites of Special Scientific Interest
SWLT	South West Lakes Trust
SWW	South West Water
ToLS	Test of Likely Significance
UK	United Kingdom

UKCP18	UK Climate Projections 2018
UKWIR	UK Water Industry Research
UN	United Nations
WAFU	Water Available for Use
WCWR	West Country Water Resources
WFD	Water Framework Directive
WINEP	Water Industry National Environment Programme
WISER	Water Industry Strategic Environmental Requirements
WRMP	Water Resource Management Plan
WRZ	Water Resource Zone
WTW	Water Treatment Works

Executive summary

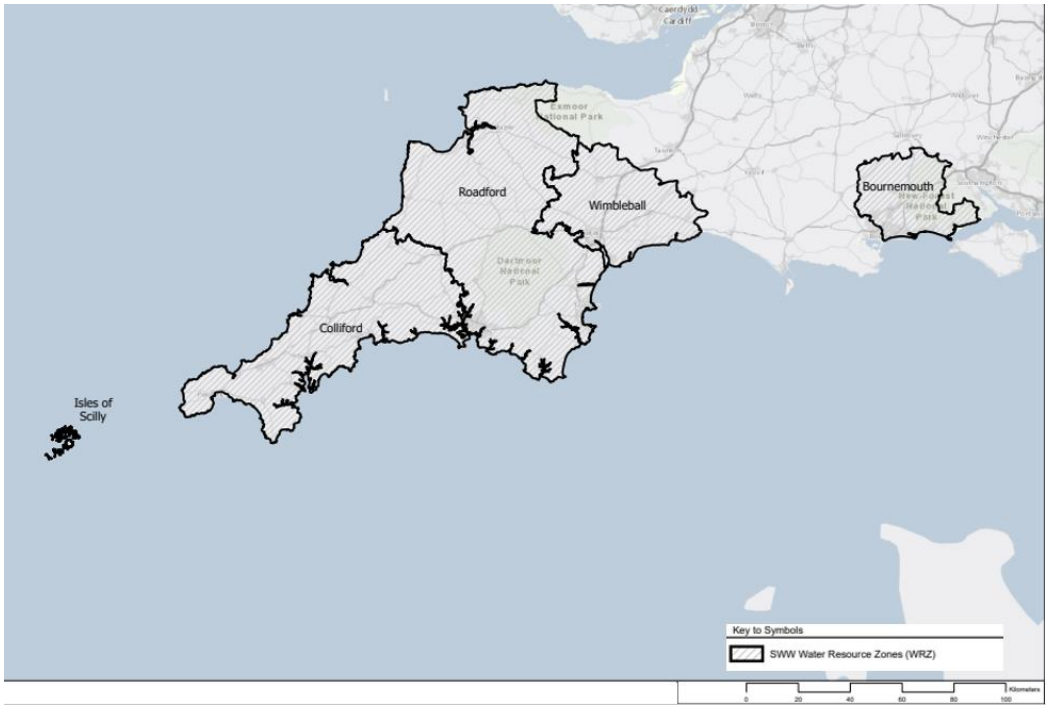
Introduction

Water companies have a statutory obligation to produce a Water Resources Management Plan (WRMP) every five years, which sets out how a company intends to maintain the balance between supply, drought and demand for water over a minimum 25-year period. In the development of a WRMP, companies must follow the Water Resource Planning Guidelines[1] ('Guidelines'). WRMPs should ensure a secure and sustainable supply of water, as well as focus on efficiently delivering the outcomes that customers want, while reflecting the value that society places on the environment.

The South West Water (SWW) supply area covers Devon, Cornwall, the Isles of Scilly and parts of Dorset, Somerset, Wiltshire and Hampshire, and provides drinking water to a population of 1.7 million. Water resources in the SWW supply area consist of three large reservoirs, a number of smaller reservoirs, river intakes, and some groundwater sources which are located predominantly in East Devon.

The SWW supply area is split into five Water Resource Zones (WRZs) in total. Three WRZs are operated in conjunction with one another to maximise water availability, these are Colliford, Roadford, and Wimbleball WRZs. Bournemouth WRZ and Isles of Scilly WRZ operate independently. The five WRZs are outlined in **Figure 0.1** below.

Figure 0.1: South West Water WRZs



Source: © Copyright Esri, Intermap, NASA, NGA, USGS (2022), Mott MacDonald (2022).

[1] EA, NRW, Defra and Ofwat (2022) *Water Resources Planning Guideline*. Available at: https://www.gov.uk/government/publications/water-resources-planning-guideline/water-resources-planning-guideline

A Strategic Environmental Assessment (SEA), and therefore the production of this Environmental Report, is a statutory requirement which must be consulted on alongside the updated draft SWW WRMP24 (the Plan) as part of the evidence base which explains any likely significant effects resulting from the Plan. The Plan will run from 2024 for a minimum period of 25 years[2].

The purpose of this Environmental Report is to present the results of the SEA of the updated draft Plan including the potential environmental and sustainability effects (positive and negative) of the options included within the Plan. By carrying out the SEA of the WRMP, it enables the opportunity to improve options in terms of their potential environmental effects and allows for mitigation measures to be devised where necessary. The SEA therefore is a tool used to steer plan-making and avoid adverse impacts.

Table 0.1 below outlines the relevant sections within the SEA Environmental Report where further information related to each section within this Executive Summary can be found.

Table 0.1: Signposting to relevant sections in SEA Environmental Report

Executive Summary Sections	Sections in Environmental Report with Further Information
The SEA Process	**Section 1.2** & **Annex 1: Appendix A**
SEA Screening and Scoping	**Section 3**
Relationships with other Policies, Plans and Programmes	**Section 4**
Baseline and Future Baseline Overview	**Section 5**& **Annex 1: Appendix C**
Key Environmental Issues and Opportunities	**Section 6.1**
SEA Framework	**Section 7** & **Annex 1: Appendix E**
Environmental Assessment Methodology	**Section 8.1**
SEA Findings	Summary SEA findings for each Water Resource Zone (WRZ) can be found in **Sections 9.2– 9.6** of the Environmental Report. The summary findings of the Informal Habitat Regulations Assessment (HRA), Water Framework Directive (WFD), Invasive Non-Native Species (INNS) and Natural Capital (NCA)/ Biodiversity Net Gain (BNG) Assessments can be found within **Sections 9.11 –9.14**. More detailed findings are presented in **Annex 2: Appendix H**; **Annex 3: Appendix I**; **Annex 4: Appendix J**; **Annex 5: Appendix K**; and **Annex 6: Appendices L-Q**.
Cumulative Effects	**Section 10.3 and 10.5**
Mitigation and Monitoring	**Section 11**

[2] GOV UK (2022) *Developing your WRMP* (Part 1.3). Available at: https://www.gov.uk/government/publications/water-resources-planning-guideline/water-resources-planning-guideline. Date accessed: 26/09/2022

Consultation and Next Steps	Section 12

The SEA Process

An SEA is required for the SWW updated dWRMP 2024 ('WRMP24') under the *Environmental Assessment of Plans and Programmes Regulations 2004* ('SEA Regulations')[3], which require an assessment of the effects of certain plans and programmes on the environment.

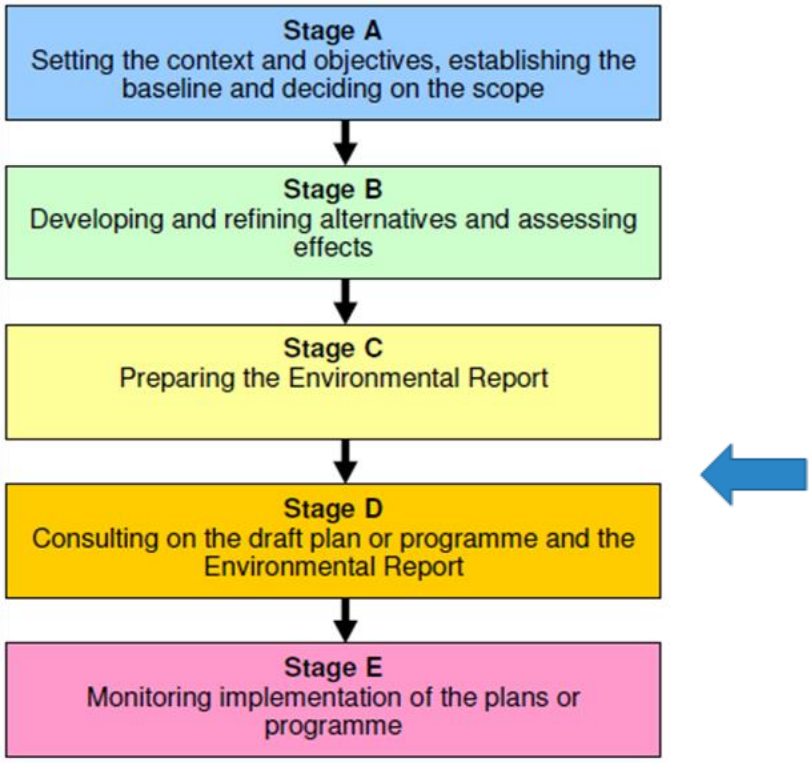
The SEA works to inform the decision-making process through the identification and assessment of potential significant and cumulative effects that a plan or programme may have on the environment. The SEA process is conducted at a strategic level and enables consultation on the potential effects of the Plan with a wide range of stakeholders.

This Environmental Report summarises the SEA process and provides a strategic-level assessment of the proposed options and updated dWRMP. This process provides a high-level initial assessment of potential sustainability risks and opportunities to help the development of the options in the updated dWRMP. It should be noted that residual risks for each option may change in future with further detailed assessments and refinement of options, plus further development of mitigation measures. Any options taken forward in future for implementation would undergo further detailed review and site assessment outside of the SEA process, prior to any construction or other implementation works taking place.

Figure 0.2 outlines the SEA process and the stage in the process which is marked by the production of the Environmental Report.

[3] The SEA Regulations were transposed into United Kingdom (UK) law from the European Union Directive 2001/42/EC, more commonly known as the SEA Directive. The SEA Regulations remain UK law following the UK's exit from the EU. Available at: https://www.legislation.gov.uk/uksi/2004/1633/contents/made (Date accessed: 26/09/22)

Figure 0.2: SEA Process Stages



Current Status of the Project

The SWW WRMP SEA is currently at Stage D of the process. The draft SEA Environmental Report was published for consultation in February 2023. This updated draft SEA Environmental Report has been issued for an eight week consultation from October to November 2023. During the consultation period stakeholders have a chance to comment on the findings and outputs of the SEA and supporting environmental assessments.

Source: A Practical Guide to the Strategic Environmental Assessment Directive, 2005[4]

This SEA Environmental Report presents the findings of the SEA of the WRMP24. Specifically, it aims to:

- Assess the potential sustainability impacts and opportunities for enhancement for the updated dWRMP24 options;
- Inform the WRMP24 decision-making process through the identification and assessment of significant and cumulative effects that the updated dWRMP24 may have on the environment; and
- Provide an opportunity to engage and collaborate with the Consultation Bodies[5].

This SEA Environmental Report was issued for consultation with the Environment Agency (EA), Natural England (NE) and Historic England (HE) for a three-month consultation period from February to May 2023. All consultation responses received during that period have been carefully reviewed and tabulated, and taken into account as far as possible. Details of how the results of the consultation responses have been taken into account by SWW has been reported in the SWW Statement of Response (SoR), Summer 2023. A further consultation, on the updated draft WRMP24 is due to commence in October 2023.

The SEA Environmental Report follows an iterative process and a subsequent update will be required to address development of options and programme plans. Following the updated draft consultation period, an updated SoR will be published in December 2023. The updated SoR will

[4] DCLG (2005) *A 'Practical Guide to the Strategic Environmental Assessment Directive', Pages 26 – 29.* Available at: https://www.gov.uk/government/publications/strategic-environmental-assessment-directive-guidance

[5] The Consultation Bodies are: Natural England, Historic England, and the Environment Agency.

include information on the changes made as a result of consultation feedback; and outstanding assessments will be provided, alongside an updated Environmental Report (This document).

During development of the updated dWRMP24, 35 new options (including 15 supply and 20 drought) have been identified, of which 29 are yet to undergo environmental assessment. The remaining six options have been assessed as part of the SWW Final Drought Plan September 2022, via Environmental Assessment Reports (EARs).

Due to the late identification of these options, they had not progressed far enough in the process to enable SWW to provide MM sufficient engineering scopes on these options to complete environmental assessments. At this stage, High-Level Screenings (HLS) have been undertaken using a Red/Amber/Green (RAG) approach to identify constraints and to determine options which present potential for significant environmental risks. Full environmental assessments will be presented in the subsequent revision of the SEA Environmental Report, as part of the updated SoR to be published in December 2023.

There are three Strategic Resource Options (SROs) which are significant strategic options spanning across water companies. Including West Country South Poole Effluent Recycling & Transfer, Mendip Quarries and Cheddar 2. The latter of which has been split into four potential options which are considered in this Environmental Report.

The SEA is integrated with other environmental assessments, including the HRA, WFD NCA, BNG Assessment and INNS Assessment. The findings of these assessments have been incorporated into the SEA, and the studies have been included as stand-alone Technical Notes in **Annex 2: Appendix H; Annex 3: Appendix I; Annex 4: Appendix J; and Annex 5: Appendix K** respectively of the SEA Environmental Report. A summary of the process for each of these assessments is provided within the Environmental Assessment Methodology Section below.

The SEA aims to deliver compliance with legislative requirements and plan-making guidelines by assessing the sustainability of various water management options within the SWW region. This informs decision making for the development of the updated dWRMP24 and ensures that water demand is met over the Plan period.

SWW also falls under the West Country Water Resources (WCWR) Regional Plan. The WCWR Draft Regional Plan has been reviewed to ensure the proposed approach to the SEA aligns with the Plan.

The SEA topics which require assessment are outlined within Schedule 2 (6) of the SEA Regulations[6]. These are as follows:

- Biodiversity;
- Population;
- Human health;
- Fauna;
- Flora;
- Soil;
- Water;
- Air;
- Climatic factors;
- Material assets;

[6] The Assessment of Plans and Programmes Regulations (2004). Available at: https://www.legislation.gov.uk/uksi/2004/1633/schedule/2/made

- Cultural heritage, including architectural and archaeological heritage; and
- Landscape.

Based upon these topics, 16 SEA objectives were developed through a review of policies, plans and programmes, local baseline conditions and likely future trends of the SWW region, the key priorities for SWW and also through a review of the SEA objectives used for WRMP19 and WRMP24 by other water companies in England. The objectives reflect the sustainability aspirations of the WRMP24. The Plan options have been assessed against these SEA objectives to analyse their potential for significant effects against various receptors associated with each SEA topic. The 16 SEA objectives are set out in **Table 0.2**

SEA Screening and Scoping

Water companies, as responsible authorities, must determine if their WRMP falls within the scope of the SEA Directive. The Plan has been screened to determine whether a SEA is required, i.e. if the Plan is likely to have significant effects under any of the SEA topics. The Plan was found to meet the criteria which require an SEA.

The Scoping Stage of the SEA process set the context and scope of the SEA and Environmental Report. Specifically, the scoping stage aimed to:

- Review relevant international, national and local policies, plans and programmes and their implications for the WRMP;
- Establish the baseline environmental and socio-economic information and key sustainability issues and opportunities for the SWW WRMP24 area;
- Set the context and objectives of the SEA;
- Decide on the scope for the SEA, ensuring that it covered all the likely significant environment effects of the WRMP; and
- Provide an opportunity to engage and collaborate with the Consultation Bodies[7].

The scoping report was issued for formal consultation for five weeks between 6th May and 9th June 2022. During the consultation period, statutory Consultation Bodies and other key stakeholders (including the public) had the opportunity to comment on the proposed scope and approach for the SEA. The comments received from the formal consultation process and the resulting updates were incorporated into to the SEA Environmental Report and assessments.

Relationships with other Policies, Plans and Programmes

The SEA Regulations (Schedule 2 (1 and 5)) require "*an outline of the contents and main objectives of the plan or programme, and of its relationship with other relevant plans and programmes" and "the environmental protection objectives… 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".*

New Water Resource Planning Guidelines were published by the EA, Natural Resources Wales (NRW) and Ofwat for the SWW WRMP24 in 2022. The Guidelines set out the framework and requirements for developing a WRMP with the objective 'to efficiently deliver resilient, sustainable water resources for customers and the environment, both now and in the long term'[8]. The updated dWRMP24 should also reflect the Government's 25-year Environment Plan, including:

- Setting out ambitions for environmental sustainability and resilience;

[7] The Consultation Bodies are: Natural England, Historic England, and the Environment Agency

[8] EA, NRW and Ofwat (2022) Water Resources Planning Guideline, Section 1.1.1. Available at: https://www.gov.uk/government/publications/water-resources-planning-guideline/water-resources-planning-guideline

- Supporting nature recovery;
- Using natural capital in decision-making;
- Using a catchment approach;
- Delivery of net gain for the environment;
- Impact of climate change with regard to river flows and groundwater recharge, and any future supply options;
- Issue of spread of INNS and proposed measures to mitigate that risk;
- Enhancing the natural resilience of catchments by effective catchment management planning, to increase the amount and/or quality of water available for abstraction without posing unacceptable pressures on the environment; and
- Consider whether abstractions are truly sustainable, looking across a catchment as a whole.

Relevant policies, plans and programmes to the SEA of the Plan are listed within **Table 4.1** of the SEA Environmental Report. These include international, European, national, regional, local policies, plans and programmes and those produced by SWW, covering topics such as wildlife and habitat protection, air quality standards and climate change. The SWW Environment Plan to 2050 (2019) and SWW & Bournemouth Water Final Water Resources Management Plan (2019) are key examples of plans which helped to shape the priority topics for the Plan. Additionally, the Plan helps to promote the achievement of objectives within other plans, such as the UK Government's 25-Year Environment Plan.

Baseline and Future Baseline Overview

The SEA Regulations require that "*the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the Plan or Programme"* are identified.

Current environmental and socio-economic baseline information was collated and reviewed for the SWW region. Key trends were identified and included likely future scenarios without the WRMP such as the continued increase in population and subsequent demand on water processing and supplies, extreme weather events linked to climate change and the continued protection of species and habitats through international and national legislation. Prediction of future trends is complex because they depend on a wide range of global, national and regional factors and decision making.

The baseline was collected from published sources and forms an evidence base against which environmental issues or opportunities resulting from the Plan can be assessed. The baseline information is presented under the SEA Regulations topics:

- **Biodiversity, Flora, and Fauna:** The SWW region is rich in biodiversity and includes a large stretch of coastline which supports a range of habitats. There are many designated and non-designated biodiversity sites within the region, including priority habitats which make up 18% of the total SWW region area.
- **Water:** Bournemouth and Isles of Scilly WRZs are classed as regions with serious water stress, with the regions of Devon and Cornwall also experiencing pressure on water resources. Additional water stress is anticipated as a result of climate change alongside population and economic growth. Wastewater and the physical modification of watercourses contributes to the decline in water quality within the SWW region. Flood risk varies around the region and is expected to be exacerbated by climate change.
- **Soil:** The SWW region has a strong agricultural presence where soils are predominantly Agricultural Land Classification (ALC) Grades 3 and 4, with some areas of Grade 1 land particularly within Devon. The region has a rich mining history and significant areas of peatland.

- **Air:** Air quality within the SWW is varied and pollutants are likely associated with industrial or transport activities. There are 27 Air Quality Management Areas (AQMAs) within the SWW region in total, which are areas where the national air quality objectives are not being met, particularly due to nitrogen dioxide (NO_2) and particulate matter (PM_{10}).
- **Climatic Factors:** Annual mean temperatures are projected to increase by 1.8°C[9] for parts of the SWW region as well as changes in seasonable variability regarding precipitation rates, with significant decreases in summer and increases in winter due to climate change.
- **Population and Human Health:** Approximately 3.1 million people live within the SWW region. Projections show that there is expected to be an increase of 300,000 people requiring a SWW supply by 2044/45. Life expectancy at birth for both males and females in the SWW region is higher than the England average. Tourism is an important sector within the SWW area, attracting visitors from across the UK and internationally.
- **Historic Environment:** The SWW region is rich in heritage with many designated and non-designated heritage assets, including high potential for unidentified archaeological remains in particular historic settings.
- **Landscape:** The landscape across the SWW region is comprised of uninterrupted views, scattered settlements and mixed agriculture, and includes the rugged coastlines of Cornwall and Devon. The region is situated within areas of high tranquillity.
- **Material Assets:** Road transport routes within the SWW region are limited in some areas with large parts of Cornwall relying on the A30 trunk road. The eastern areas of Devon are accessible from the M5 Motorway. Rail links within the SWW region connect rural areas, where rail travel can then be taken to Bristol and London. Incineration accounts for the most common waste disposal method by local authorities in the region.

Note: The SWW updated dWRMP24 covers a large geographical area, and the baseline is therefore a high-level review of conditions within the region, rather than being location specific.

Key Environmental Issues and Opportunities

The SEA Regulations (Schedule 2 (4)) require consideration of "*any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of particular environmental importance, such as areas designated pursuant to Council Directive 79/409/EEC on the conservation of wild birds (a) and the Habitats Directive*".

A key stage in the scoping process is to determine which topics are relevant for the SWW WRMP24 SEA and which topics (if any) should be scoped out. It was considered that all the SEA Regulations topics are relevant to the updated dWRMP24 and therefore they have all been scoped in.

The key objectives and issues from the related plans and policies and trends of baseline and future baseline were reviewed to identify key environmental issues and opportunities for SWW and the WRMP for each SEA topic, and how the WRMP24 should seek to enhance the topic area. This includes potential issues such as developmental impacts on designated and non-designated biodiversity sites, impacts on watercourses and loss of soil resources. Enhancement opportunities relevant to the Plan include biodiversity integration with new infrastructure, supporting water-based habitats through increasing water levels in local watercourses and opportunities for peatland restoration.

SWW are developing a proposal to include a biodiversity fund in their final WRMP, which will look to mitigate some of the environment impacts noted and deliver overall BNG.

[9] Calculated using the RCP8.5 scenario at the 50th percentile against a 1981-2010 baseline.

SEA Framework

A key part of the SEA Scoping process was the development of the SEA Assessment Framework. The Assessment Framework was used to undertake the assessment of the updated dWRMP24 options and the preferred plan.

The framework includes SEA objectives and indicators which were used to assess the options and plan to determine the potential sustainability effects arising from the implementation of the updated dWRMP24. The Assessment Framework reflects the key sustainability issues and SWW's priorities which the SEA seeks to enhance in the updated dWRMP24. The framework was developed and consulted upon as part of the SEA Scoping Stage.

An overarching set of 16 SEA objectives was developed, as shown in **Table 0.2** below. These are linked to the SEA Regulations topics, and have been informed by the review of policies, plans and programmes and their key requirements; the local baseline conditions and likely future trends of the SWW region; and the key issues, opportunities and priorities for SWW. They have also been informed by a review of the SEA objectives used for WRMP19 and WRMP24 by other water companies in England. The SEA objectives also support the SWW outcomes for customers and the environment; the Department for Environment, Food and Rural Affairs (Defra) '*Guiding Principles for water resource planning*'; and the Defra '*Creating a great place for living: Together we are building a green and healthy future*'.

Whilst the SEA objectives are presented under discrete topics, there are some overlaps between objectives with associated sub-themes. For example, the results of the HRA and WFD assessments fed into the SEA objectives for the biodiversity and water topics.

Assessment guide questions have been produced for each of the SEA objectives. These are used to guide the SEA assessment to ensure that the same factors are considered by all assessors for each objective. **Table 7.2** within the Environmental Report presents the assessment guide questions for the options and updated dWRMP24 assessment.

The SEA assessment guide questions are supported by detailed SEA Assessment Scoring Criteria (see **Table 0.3** below as an example for the biodiversity topic) which set out how the scale of effect is determined for each SEA objective. It also specifies key datasets used for the assessment of each objective.

Table 0.2: SWW WRMP24 SEA Objectives

SEA Topics	Number within summaries	SWW WRMP24 SEA Objectives
Biodiversity, Flora and Fauna	1.1	Protect and enhance designated and non-designated ecological sites
	1.2	Protect, conserve and enhance biodiversity, including priority species, vulnerable habitats and habitat connectivity

SEA Topics	Number within summaries	SWW WRMP24 SEA Objectives
	1.3	Reduce the spread or presence of INNS
Water	2.1	Protect and enhance the quality of the water environment and water resources
	2.2	Increase resilience and reduce flood risk
	2.3	Deliver reliable and resilient water supplies
Soil	3	Protect and enhance the functionality, quantity and quality of soils, including the protection of sites of geological importance
Air	4	Reduce and minimise air emissions
Climatic Factors	5.1	Reduce embodied and operational carbon emissions
	5.2	Reduce vulnerability to climate change risks and hazards
Historic Environment	6	Conserve, protect and enhance the historic environment, including archaeology
Landscape	7	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity
Population and Human Health	8.1	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing
	8.2	Maintain and enhance tourism and recreation

SEA Topics	Number within summaries	SWW WRMP24 SEA Objectives
Material Assets	9.1	Minimise resource use and waste production
	9.2	Avoid negative effects on built assets and infrastructure

Environmental Assessment Methodology

The approach to the environmental assessments for the updated dWRMP24 follows the Water Resources Planning (WRP) guidance and supplementary guidance[10]. The following environmental assessments have been undertaken:

- SEA;
- HRA;
- WFD;
- INNS
- NCA; and
- BNG.

The 29 new options (supply and drought) have not been assessed as part of this version of the SEA. Due to the late identification of these options, they had not progressed far enough in the process to enable SWW to provide MM sufficient engineering scopes on these options to complete environmental assessments. A HLS has been undertaken in accordance with Mott MacDonald (2022), South West Water WRMP24 Strategic Environmental Assessment (SEA) High-Level Screening Summary Report (Document reference: *100107117-MMD-RP-SEA-004-B*). A full SEA is being undertaken for these options and will be provided December 2023.

SEA

Information on the updated dWRMP24 options has been provided by SWW, and the environmental assessments were undertaken based on both national and local datasets and information. The WRMP options have been assessed following the UKWIR SEA guidance[11]. The SEA assessment framework and scoring criteria described above was used to assess the potential positive and negative effects of each option, against each of the SEA objectives. An example of the scoring criteria used is shown in **Table 0.3** below. Positive and negative effects cannot cancel each other out. Therefore, if both a positive and negative effect is anticipated, a split score will be displayed for example -/+.

[10] EA, NRW and Ofwat (2022) Water Resources Planning Guideline. Available at: https://www.gov.uk/government/publications/water-resources-planning-guideline/water-resources-planning-guideline

[11] UKWIR (2021) Environmental Assessment Guidance for Water Resources Management Plans and Drought Plans.

Table 0.3: Scoring Key

Effect	Description	Example Scoring Definitions – Biodiversity Objective
+++	Major Positive	The option would result in a major enhancement of designated sites/habitats due to changes in flow or groundwater levels, water quality or habitat quality and availability The option would result in a major increase in the population of a priority species Effects could be caused by beneficial changes in water flows/water quality, or moderate amount of creation or enhancement of habitat, promoting a major increase in ecosystem structure, function or connectivity The option would result in a major reduction or management of INNS
++	Moderate Positive	The option would result in a moderate enhancement on the quality of designated and/or non-designated sites/habitats due to changes in flow or groundwater levels, water quality or habitat creation and enhancement measures The option would result in a moderate increase in the population of a priority species Effects could be caused by beneficial changes in water flows/water quality, or moderate amounts of creation or enhancement of habitat, promoting a moderate increase in ecosystem structure, function or connectivity The option would result in a moderate reduction or management of INNS
+	Minor Positive	The option would result in a minor enhancement on the quality of designated and/or non-designated sites/habitats due to changes in flow or groundwater levels, water quality or habitat creation and enhancement measures The option would result in a minor increase in the population of a priority species Effects could be caused by beneficial changes in water flows/water quality, or moderate amounts of creation or enhancement of habitat, promoting a minor increase in ecosystem structure, function or connectivity The option would result in a minor reduction or management of INNS
0	Neutral	The option would not result in any effects on designated or non-designated sites including habitats and/or species. It will not have an effect on INNS

Effect	Description	Example Scoring Definitions – Biodiversity Objective
-	Minor Negative	The option would result in a minor negative effect on the quality of designated and/or non-designated sites/habitats due to changes in flow or groundwater levels, water quality or habitat loss or degradation The option would result in a minor decrease in the population of a priority species Effects could be caused by detrimental changes in flows/water quality or small losses or degradation of habitat leading to a minor loss of ecosystem structure, function or connectivity The option would result in a minor increase or spread of INNS
--	Moderate Negative	The option would result in a moderate negative effect on the quality of designated and/or non-designated sites/habitats due to changes in flow or groundwater levels, water quality or habitat loss or degradation The option would result in a moderate decrease in the population of a priority species Effects could be caused by detrimental changes in flows/water quality or small losses or degradation of habitat leading to a moderate loss of ecosystem structure, function or connectivity The option would result in a moderate increase or spread of INNS.
---	Major Negative	The option would result in a major negative effect on the quality of designated and/or non-designated sites / habitats due to changes in flow or groundwater levels, water quality or habitat loss or degradation The option would result in a major decrease in the population of a priority species Effects could be caused by detrimental changes in flows/water quality, or large losses or degradation of habitat leading to a major loss of ecosystem structure and function 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.

It should be noted that the SEA is a high-level initial assessment of likely risks and opportunities to help the development of the options in the updated dWRMP24. Residual risks for each option are subject to change in future with further detailed assessments and refinement of options. Mitigation measures are likely to be required and these will also undergo further development. This means that the scale of effects for each option currently identified in the SEA (i.e. minor/moderate/major positive or negative effects) may change in future, and adverse effects

may be revised downwards as mitigation is further developed and confirmed. Any options taken forward in future for implementation would undergo further detailed review and site assessment outside of the SEA process, prior to any construction or other implementation works taking place. It should also be noted that the yellow 'neutral' score has been assigned this colour to reflect that there have been no identified likely impacts on a given SEA objective.

HRA

The HRA assessment involves a two-step approach, including Screening and Appropriate Assessment (AA). Firstly, the screening, or Test of Likely Significance (ToLS) is undertaken.

Screening information was reviewed for each feature of interest and potential effect / impact pathways were identified to inform the assessment of any Likely Significant Effects or adverse effects on integrity of designated sites.

A Zone of Influence (ZoI) threshold of 10km was used, in addition to more distant sites beyond 10km which were hydrologically connected.

This process allowed the identification of:

- Any SPA/SAC/pSPA/cSAC/Ramsar sites, including any marine or marine elements, and functionally linked habitats which support the site.
- ZoI of potential effects resulting from the option (may extend some distance from the site).
- Any viable pathways from the option to the receptor (Habitats Sites or functionally linked habitat).
- The features of interest of the Habitats Sites.
- Conservation objectives of the Habitats Site, including any site sensitivities given within any supplementary advice, site improvement plan, or equivalent document published by Natural England.

Potential effects were scoped in unless there was evidence to the contrary demonstrating that they would not occur e.g. there being no valid pathway, or the absence of the species in that area, at that time.

In line with relevant case law, screening was undertaken in the absence of mitigation (including 'best practice' measures embedded into the option where these are intended for the avoidance of effects).

Significance of effect is considered against the scale and nature of the impact in relation to the particular feature or condition and its extent. A significant effect is one that would lead to a decline in the quality or status of the habitats or distribution, abundance etc of features of interest.

Where potential significant effects were identified, the assessment has taken these effects through to Stage 2 AA.

The HRA AA was undertaken using the following approach:

- Review sites identified at Stage 1 and confirm any additions or exclusions.
- Assessment of the construction and operation effects of the option.
- Assessment of the Habitats Sites' characteristics and identification of their conservation objectives.
- Identification of the aspects of the proposed options that may significantly impact the conservation objectives of the Habitats Sites.
- Includes mitigation measures to eliminate or reduce any effects identified in screening.

Without detailed design/construction information and targeted ecology survey data, it is not always possible to determine the exact scale and extent of the impact. However, it is anticipated that through appropriate mitigation and option development these effects can be mitigated.

At this stage, the AA has been taken as far as possible, given the maturity of option development and desk-based study (titled as 'informal' AA to reflect this status). Options will undergo further study and detailed AA at the project stage (outside of the WRMP24 process) before implementation. Site surveys will also be undertaken when detailed design and construction information is available.

It is noted that a HRA has not been undertaken for the 29 new options identified as part of the updated dWRMP24 development. As part of the HLS assessment an interim screening has been undertaken and outputs presented within Appendix 4.2 of the updated dWRMP24. HRA ToLS is underway and where required an AA will be undertaken, with the results presented as part of the December 2023 update.

WFD

The WFD assessment involves a two-step approach including a Level 1 Screening and a Level 2 Assessment. Firstly, a Level 1 Screening is completed for all options. This assessment works to:

- Identify affected water bodies;
- Breakdown option into construction, operation and decommissioning activities;
- Assign each activity an impact score;
- Consider any embedded mitigation measures; and
- Calculate a screening score (using 6-point scale from -2 to 3).

The Level 1 assessment uses the All Company Working Group (ACWG) WFD assessment framework. The Level 2 Assessment is more detailed and is completed for options screened in at Level 1. This includes:

- Water body-scale assessment of impacts to each WFD quality element for each activity within an option;
- Assessment of data confidence level and design certainty;
- Identification of further mitigation needs;
- Assessment of impacts after mitigation (scoring on 6-point scale); and
- Identification of activities to improve certainty of assessment outcomes.

The Level 2 assessment considers mitigation that would be needed to protect water body status and meet WFD future objectives.

The geographical extent of the WFD assessment is generally limited to the water bodies where abstractions take place. Where downstream impacts are possible, these waterbodies have been included in the relevant assessments. Additional hydrological and hydrogeological studies will need to be undertaken in future to confirm impacts.

Confidence levels are assigned for each assessment, based on the quality and availability of both physical data and design information about the option at the time of assessment. Confidence/certainty expected to increase over time.

Options will undergo further study at the project stage (outside of the WRMP24 process) before implementation.

At this stage no WFD assessments have been undertaken for the 29 new options due to time constraints and provision of information. These assessments are currently underway and will be provided as part of the December 2023 update.

INNS

The INNS assessment follows a two-step process. A Level 1 screening is undertaken for all options. This focused on the pathways that options create during operation, and the potential impact of these pathways, rather than current INNS distribution.

The process is as follows:

- Determination of a 'Frequency of Impact' rating i.e. infrequent, periodical, regular;
- Determination of a 'Severity of Impact rating' e.g. new raw water transfers with no previous connection are highest severity, while transfer of treated water is considered low risk; and
- Frequency of Impact and Severity of Impact ratings combined to give a 'Risk Magnitude' rating

Risk magnitude of Low, Moderate or High are progressed to Level 2 assessment. Risk magnitude of None or Very Low are screened out.

Construction-phase impacts are best evaluated and mitigated on a case-by-case basis at a more advanced stage in option design. These will be assessed at a later stage to determine appropriate mitigation and biosecurity measures.

The Level 2 assessment methodology utilises the SRO Aquatic INNS Risk Assessment Tool (SAI-RAT)[12] to quantify the INNS risk associated with WRMP options, based on the conceptual design information available.

Risk Scores are presented as a percentage of the highest potential score, with a higher score signifying an increased risk of introducing and transferring INNS.

SAI-RAT requires distinct asset and Raw Water Transfer (RWT) components to be considered, and option data entered into the SAI-RAT spreadsheet tool.

At this stage INNS assessments have not been undertaken for the 29 new options due to time constraints and provision of information. These assessments are currently underway and will be provided as part of the December 2023 update.

BNG

The BNG methodology assessed change in habitat due to construction and operation of the updated dWRMP24 options. The assessment used Defra's Biodiversity Metric 3.1[13] to assess biodiversity net gain (BNG). This includes:

- Developing a biodiversity baseline from spatial datasets of habitats inventories.
- Assigning units to pre-construction land use according to the habitats present in the options' boundary.
- Post-construction land use, including any mitigation described in the options' description, was used to calculate the post-construction score.
- Priority Habitat Inventory and sites with SSSI, SAC, SPA and Ramsar designations were used to identify areas with high biodiversity importance.

[12] APEM (2023) *SAI-RAT: Assessing the risk of invasive species for SROs*. Available at: SAI-RAT: assessing the risk of invasive species for SROs (apemltd.com)

[13] DEFRA (2023) *Biodiversity metric: calculate the biodiversity net gain of a project or development*. Available at: https://www.gov.uk/guidance/biodiversity-metric-calculate-the-biodiversity-net-gain-of-a-project-or-development

On-site habitat survey data or further detailed design information will be needed to refine the accuracy of BNG calculations for each option.

At this stage BNG assessments have not been undertaken for the 29 new options due to time constraints and provision of information. These assessments are currently underway and will be provided as part of the December 2023 update.

NCA

The NCA methodology includes the valuation of natural capital assets and ecosystem services within the footprint of each option. The assessment is undertaken in a sequential manner with an initial qualitative assessment, followed by quantitative analysis, and then monetised assessment (if enough confidence exists in the values). The NCA assessment is undertaken in accordance with WRPG, Defra's Enabling a Natural Capital Approach (ENCA) guidance, HM Treasury's Green Book[14]. The process is as follows:

- Identify ZoI – area likely to be altered or changed as a result of the option, resulting in a potential change to the environmental benefits that are currently being provided.
- Develop Natural Capital baseline – reported the total quantity of each stock within the zone of influence for each option.
- Natural Capital Assessment – impact on the natural capital stocks reported for each option, both during construction and post-construction.
- Ecosystem Services – the change in natural capital stocks informed the assessment of impacts against the natural capital metrics (ecosystem services).
- Monetisation of impacts – undertaken where possible, reported as a discreet monetary figure.

Five ecosystem services were monetised (marked with '£' below – not all can be monetised). The metrics used to assess impact on natural capital were:

  - Carbon sequestration (climate regulation) (£)
  - Natural hazard management (£)
  - Water purification *Qualitative assessment
  - Water regulation *Qualitative assessment
  - Air pollutant removal (£)
  - Recreation & amenity value (£)
  - Food production (£)
  - Biodiversity and habitats **Separate BNG assessment*

At this stage NCA have not been undertaken for the 29 new options due to time constraints and provision of information. These assessments are currently underway and will be provided as part of the December 2023 update.

Environmental Assessments

The results of the HRA, BNG, NCA, INNS and WFD assessments have fed into the SEA assessments for the biodiversity objectives, and the WFD assessments have informed the

[14] DEFRA (2023) *Enabling a Natural Capital Approach (ENCA).* Available at: Enabling a Natural Capital Approach (ENCA) - GOV.UK (www.gov.uk)

assessment for the SEA water topic. To determine the environmental effects of the options and alternatives programmes for the updated dWRMP24, the following tasks were undertaken:

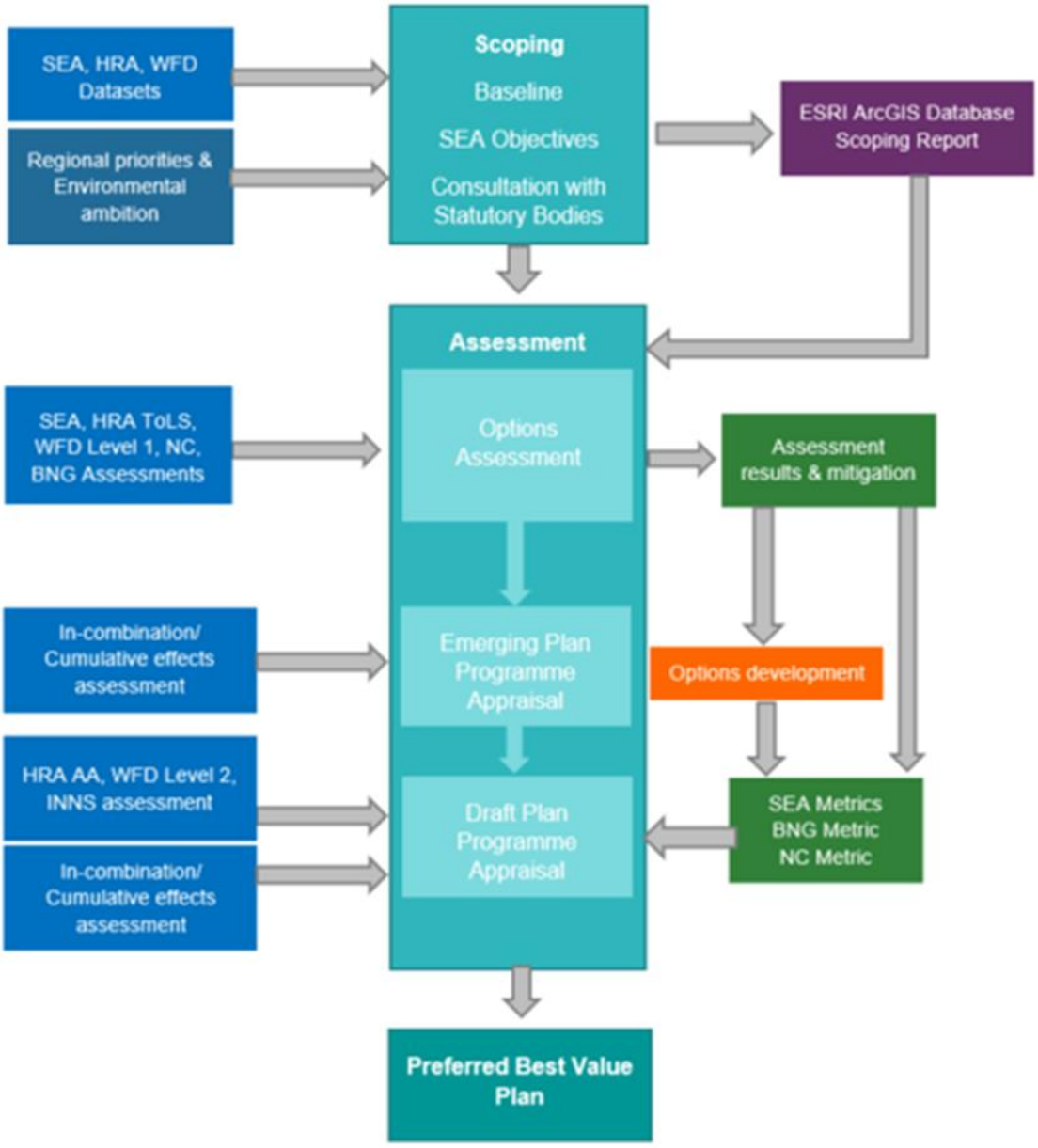
- Options level environmental assessments for proposed supply and demand options for the updated dWRMP24; and
- Programme level environmental appraisal of the updated dWRMP24 (preferred adaptive plan) and the alternative programmes including cumulative and in-combination effects.

Note as part of the updated dWRMP24 development Isles of Scilly options were initially removed due to options being undertaken as part of AMP7. However, it is currently understood that these options have been retained and further review and assessment is required following provision of additional information. Additional further SEA and supporting technical environmental assessments are required for the new options, interim HLS have been undertaken and findings outlined within this report. During the production this report the alternative plans have not been provided and as such no cumulative / in-combination effects assessments have been undertaken. These updates are currently underway and will be reflected within the December 2023 submission.

Figure 0.3: Environmental Method Integration with Options Decision-Making and Plan Development

presents a diagram of the overarching environmental assessment approach (with the exclusion of the HLS approach). It shows the key interactions between the environmental assessment and the options decision-making and plan development as part of an integrated and iterative process.

Figure 0.3: Environmental Method Integration with Options Decision-Making and Plan Development



SEA Findings

A two-stage process was undertaken to determine the environmental effects of the options and preferred updated draft SWW WRMP24. An options level SEA assessment was undertaken for some options included within the updated draft WRMP24.

55 feasible options were included in the updated dWRMP24, including 40 supply options and 15 demand options. There are also three Strategic Resource Options (one of which involves four potential options) under development in the region, which undergo a sperate environmental assessment process.

During the WRMP24 development, as part of the updated dWRMP24, 35 new options (including 15 supply and 20 drought) have been identified, of which 29 are yet to undergo environmental assessment at the time of writing.

Due to time constraints and availability of information these 29 options have yet to undergo environmental assessments (SEA, WFD, HRA, INNS, BNG and NCA). As an interim measure, High-Level Screenings (HLS) have been undertaken using a Red/Amber/Green (RAG) approach to identify options which present potential for adverse environmental risks. Full assessments will be presented in the subsequent revision of the SEA Environmental Report, that will be provided as part of the updated SoR to be published in December 2023.

The remaining six options have been assessed as part of the SWW Final Drought Plan September 2022, via Environmental Assessment Reports (EARs).

Table 0.4 and **Table 0.5** list the 40 supply options and 15 demand reduction options which were identified and assessed within the SEA, based on the information available at the time of writing. **Table 0.6** lists the 35 new options.

It is recognised that further updates and additional options may be brought forward and assessed in future updates.

Table 0.4: Updated draft WRMP24 Supply Options

WRZ	Option Ref	Scheme Type	Option Name	Description	Yield (Ml/d)
Bournemouth	BNW1	Redevelopment of existing sources with increased yields	Borehole development, existing borehole remedial works.	Borehole development, existing borehole remedial works.	1
Bournemouth	BNW3	Groundwater Sources	Wimborne transfer to Longham – license change	Transfer of the groundwater abstraction licence from Wimborne to Longham on the River Stour.	4
Bournemouth	BNW6	Aquifer Recharge	Longham Aquifer Recharge	Aquifer storage and recovery (ASR) at Longham. Pumping and storage of water in winter months for subsequent abstraction.	10
Bournemouth	BNW14	New raw water supply and new onsite treatment	Ibsley Lake	Deliver abstracted water from Ibsley Lake to Knapp Mill for treatment. The aim is to improve the resilience of the local network in the Dorset region during summer months and to reduce demand on other water sources.	10
Colliford	COL2	Direct River Abstraction	Colliford PS Stage 2 – River Camel Abstraction	New abstraction licence. New river intake and pumping station at Nanstallon, for 90Ml/d at 120m head. 15km of 900m diameter pipeline from the intake to Restormel WTW. Upgrade to existing Restormel WTW intake to pump 110Ml/d (an increase of 15Ml/d). Raw water is then pumped to Colliford Reservoir via existing main.	15
Colliford	COL3	Direct River Abstraction	Abstraction of Colliford compensation flows when making supply releases	Abstraction of Colliford compensation flow when making supply releases. No infrastructure changes required.	2.3
Colliford	COL4	Direct River Abstraction	Abstraction of Siblyblack compensation flows when making supply releases	Abstraction of Siblyback compensation flow when making supply releases. No infrastructure changes required.	1.5
Colliford	COL5	Direct River Abstraction	Increase Wendron annual licence and de-couple from Stithians	No infrastructure changes required.	1 - 2
Colliford	COL6	Direct River Abstraction	River Hayle abstraction	Abstraction from River Hayle at existing disused intake, treat abstracted water at new onsite treatment works.	1 - 2
Colliford	COL9	New reservoir or development of existing source or	Lewsidden Pool	Transfer of former quarry water to Drift Reservoir via Sancreed stream. Distance from Leswidden Pool to Sancreed Stream (5km estimate).	5.46

WRZ	Option Ref	Scheme Type	Option Name	Description	Yield (Ml/d)
		mineral extraction workings			
Colliford	COL15	Increase WTW capacity to licence maximum	Restermol WTW	Increasing Restormel WTW up to its maximum licensed abstraction and enable more effective use to be made of Colliford/ River Fowey resources system.	5
Colliford	COL19	Reintroduce more regular use of existing sources	Boswyn Stream/ Cargenwen Reservoir/ Carwynnen Stream	Re-introduce abstractions of abstraction points at each of these sites.	3
Colliford	COL20	Direct River Abstraction	River Fal new abstraction	New abstraction on the River Fal near Lanihome. New intake, onsite WTW and connection to distribution system.	25
Colliford	COL21	New raw water supply	Alternative raw water supply from Cornish Metals at Crofty	Wheal Jane – The proposed scheme will involve the treatment of effluent from the HDS plant to reach a quality suitable to then be discharged into the Stithians reservoir. South Crofty – The proposed scheme will treat further effluent from the HDS plant to reach a quality suitable to then be discharged into the Stithians reservoir.	20.7
Colliford	COL29	Water Treatment Works Capacity Increase	Restormel WTW capacity increase	Increasing existing abstraction at Restormel WTW from 93Ml/d to 120Ml/d. Upgrades to intake structure, screening, pumps and pipework.	120
Roadford	ROA2	Direct River Abstraction	River Erme	Intake relocation, update to the River Erme abstraction licence and new pumping station. Two possible locations have been proposed, option ROA2a is situated within arable farmland where option ROA2b is proposed within the existing Ivybridge STW.	1
Roadford	ROA3	Direct River Abstraction	River Yealm	Intake relocation and new pumping station. Additional pipeline may be required to connect new intake point with existing South Devon Spine Main pipe network.	3
Roadford	ROA4	Direct River Abstraction	Abstraction of Roadford compensation flow at Gunnislake when making supply releases	No infrastructure changes required.	3.7
Roadford	ROA6	New reservoir or development of existing source or	Upper Tamar Lake increasing annual license	Increasing daily abstraction limit, upgrades to WTW and distribution network.	1

WRZ	Option Ref	Scheme Type	Option Name	Description	Yield (Ml/d)
		mineral extraction workings			
Roadford	ROA7	Increase WTW to licence maximum	Expansion of Northcombe WTW to 60Ml/d	Treatment works to be able to deliver a minimum of 60Ml/d. additional 10Ml/d pumping capacity at Roadford reservoir.	10
Roadford	ROA12	Reintroduce more regular use of existing sources	Slade and Horedown WTW (GAC)	Installation of new pumping station at Slade reservoir and new 4Ml/d GAC plant at Horedown WTW.	2
Roadford	ROA13	Reintroduce more regular use of existing sources, water quality management at WTW	Duckaller and Vennbridge	Changes to abstraction licences and 4Ml/d nitrate removal plant installation at Duckaller pumping station to facilitate full use of sources.	0.4
Roadford	ROA14	New reservoir or development of existing source or mineral extraction workings	Raise Avon Dam	Raise Avon Dam by 2m and increase in reservoir size by 50m from current reservoir edge. Subject to structural engineering approval.	2.5
Roadford	ROA15	New reservoir or development of existing source or mineral extraction workings	Gatherley Phase 2	Pipeline from abstraction point in River Lyd to Roadford Lake Reservoir. Completion of scheme to allow 125Ml/d to be transferred to Roadford Reservoir. Dual main required between River Lyd and Roadford Reservoir.	125
Roadford	ROA17	Water Treatment Works Output Increase	Littlehempston WTW -– Increase water offsite to licence maximum, offsite high lift pumping and main capacity	The option involves the dualling of trunk main pipelines from Littlehempston WTW to Gallows Gate (9.22km and 600mm dia) in the west and Crabadon Cross via Langridge Cross (9.87km and 400mm dia) in the east (total of 19.09km). This would include crossing the River Dart and two rail lines.	5
Wimbleball	WIM1	Direct River Abstraction	Abstraction of Wimbleball compensation flow at Northbridge when making supply releases	No infrastructure changes required. Abstracted water will have come from Wimbleball Reservoir. Downstream of abstraction point, the River Erme will have a reduced flow, it is assumed that there will be a small increase in energy due to increased water treatment and pumping.	9
Wimbleball	WIM2	Groundwater Sources	Sidford borehole commissioning	Equip and make operational existing borehole; pump, headworks, control and monitoring system, connecting pipework. New groundwater source treatment system	1.5

WRZ	Option Ref	Scheme Type	Option Name	Description	Yield (Ml/d)
				including chlorination and iron and manganese removal plant, within existing site footprint.	
Wimbleball	WIM4	Groundwater Sources	Wilmington springs annual abstraction increase	No infrastructure changes required. A reduction in flow downstream in the Umborne Brook and a very small increase in energy required for the increased water treatment / distribution. The current intake is restricted by the current licence. The licence will be varied to allow a greater volume of water to be taken over the year.	0.4
Wimbleball	WIM5	Reclaimed water, water reuse, effluent reuse	Indirect potable reuse – stream support for Dotton WTW	Pumped treated effluent from Sidmouth WWTW directly to the River Otter using a new pipeline (5km) and outfall to augment the river during low flow periods. High pumping requirements due to a height variance in the pipeline route.	2
Wimbleball	WIM6	Increase WTW capacity to licence maximum	Increase Allers WTW capacity	Increase daily abstraction licence to 36Ml/d. upgrade Bolham abstraction to pump additional 4Ml/d. upgrade WTW to treat an additional 4Ml/d, with distribution network improvements.	4
Wimbleball	WIM7	Increase WTW capacity to licence maximum	Increase Pynes to licence limit 66.46Ml/d	Upgrade WTW to treat an additional 6.5Ml/d. The final works could include new river intake streams, raw water main pipeline replacements, installation of additional of water treatment equipment, and pump replacements. There will be no distribution network changes. During operation, there will be an increased energy consumption to accommodate for the additional water treatment and distribution. The WTW extracts untreated water from the River Exe. The natural river flows can be supplemented with releases from Wimbleball reservoir in the River Haddeo, a tributary of the River Exe.	6.5
Wimbleball	WIM8	Redevelopment of existing sources with increased yields (changes to system operation). Reintroduce more regular use of existing sources	Brampford Speke borehole	Agree licence changes with EA. Site commissioning.	3.5

WRZ	Option Ref	Scheme Type	Option Name	Description	Yield (Ml/d)
Wimbleball	WIM9	Redevelopment of existing sources with increased yields (changes to system operation). Reintroduce more regular use of existing sources	Stoke Canon borehole	Agree licence changes with EA. Install new power supply. Site commissioning.	4.5
Wimbleball	WIM11	Transfer of water	Couchill Springs, Seaton	Supplement water supply to Bovey Lane WTW from Couchill Springs via a new 1.49km pipeline. New assets at Bovey Lane would be required including a collection chamber and pumping station, break tank, amazon filters, and UV disinfection.	1
Wimbleball	WIM12	New groundwater	Allers Springs	Abstraction from Allers Springs which is then piped to Allers WTW for treatment. The option would require a concrete well, 2no. 3kW submersible pumps, raw water pipework from well to raw water tank (connection to existing asset), and abstraction licence.	1
Isles of Scilly	ISMY1	Groundwater sources	St Mary's new borehole (location 1)	Drilling of new supply borehole 30m depth, 150mm diameter borehole / c. 1kW pump. Associated infrastructure (headworks, kiosk and pipework) wastewater piped via raw main (estimated 32mm diameter for 500m distance) to existing WTW. Assumes spare capacity at existing WTW. No additional requirement.	0.1 – 0.15
Isles of Scilly	ISMY2	Groundwater sources	St Mary's new borehole (location 2)	Drilling of new supply borehole at 30m depth with 150mm diameter borehole / c. 1kW pump. Associated infrastructure (headworks, kiosk and pipework) and requiring standalone treatment, with water piped directly into supply network (estimated 32mm diameter for 500m distance).	0.1 – 0.15
Isles of Scilly	ISMY4	Redevelopment of existing sources with increased yields	St Mary's - Increase Existing Desalination Plant Capacity	Additional process stream at existing RO plant. New building required.	0.1 – 0.25
Isles of Scilly	ISB4	Redevelopment of existing sources with increased yields	Bryher – Increase Existing Desalination Plant Capacity	Additional process stream at existing RO plant plus increased borehole yield and/or new borehole source. New building required.	0.1 – 0.2

WRZ	Option Ref	Scheme Type	Option Name	Description	Yield (Ml/d)
Isles of Scilly	IST1	Groundwater sources	Tresco new borehole	Drilling of new supply borehole to South or east of island. Assumed 30m depth, 0.75kW pump, 100mm diameter borehole pipework, with associated infrastructure (headworks, kiosk and pipework) and on-site treatment (assume UV disinfection) wastewater piped via new raw main (estimated 40mm diameter for 500m distance) to existing WTW. Cost for new WTW and UV.	0.03

Table 0.5: Updated draft WRMP24 Demand Options

WRZ	Option Ref	Option Type	Options	Description	Yield (Ml/d)
SWW	HH: Metering	Metering other selective, metering compulsory, metering optants, metering change of occupancy	HH_M_002 HH_M_003a_v1 HH_M_003b HH_M_004 HH_M_006a HH_M_006b HH_M_006c HH_M_007a HH_M_007b HH_M_008	Includes all interventions involving household metering. This includes compulsory metering, metering optants, metering change of occupancy and other selective metering options.	Undetermined
SWW	HH: Water efficiency customer education/awareness	Household water efficiency customer education/awareness	HH_E_013 HH_E_017	Education and awareness raising programmes to improve customer water efficiency practices.	Undetermined
SWW	HH: Water Audit	Household water audit	HH_A_002 HH_A_003 HH_A_004 HH_A_005 HH_A_006 HH_E_009	Household water audits including both in-person and virtual home efficiency visits.	Undetermined

WRZ	Option Ref	Option Type	Options	Description	Yield (Ml/d)
			HH_E_010 [15]		
SWW	HH: Retrofitting indoor water efficiency devices	Retrofitting indoor water efficiency devices	HH_E_001 HH_E_004	Involves retrofitting old water devices to more efficient ones.	Undetermined
SWW	HH: Other water efficiency (incentives)	Other water efficiency (incentives)	HH_I_001 HH_I_002	Targeted financial and non-financial incentives for new metered customers and developers to increase awareness and motivation to reduce water use, and ensure all new homes are designed to enhance water efficiency standards.	Undetermined
SWW	HH/NHH: Tariff	Tariff	HH_T_001	Use of tariffs to motivate water efficiency and customer behaviours. The rate of water increases as the volumes of consumption increases.	Undetermined
SWW	HH: Rainwater harvesting	Rainwater Harvesting	HH_N_001 HH_N_003	Work with developers to provide a community-wide rainwater harvesting system to provide a non-potable supply for toilets and washing machines for new properties. Water is collected from roof runoff and a sustainable drainage system is created.	Undetermined
SWW	Distribution Options: Distribution mains and trunk mains replacement, pressure management, active leakage control and other leakage control measures	Active leakage management, mains replacement, other leakage control, pressure management, trunk mains renewal (new)	LKG_01_ALC LKG_02_IALC LKG_03_ARMC LKG_04_ARMO LKG_05_ARCO LKG_06_ALCRI LKG_07_ARI LKG_08_PAL LKG_09_DMAMLT LKG_10_CSPLR LKG_11_DMASD LKG_12_APM LKG_13_PRT LKG_14_TMARMC LKG_14_TMARM LKG_14_TMARC	Options involve reducing leakage to achieve water efficiency.	Undetermined

[15] Since this option was assessed, it has now been moved to the 'unconstrained' list as it has not been deemed fully feasible. Therefore this option may be removed in future if it is considered unfeasible after further study.

WRZ	Option Ref	Option Type	Options	Description	Yield (Ml/d)
			LKG_15_TMAALC LKG_16_TMFMZ LKG_17_TMLG		
SWW	Drought – water use restrictions.	Customer options	DRT_Dem_Lev1 DRT_Dem_Lev2 DRT_Dem_Lev3	• Enhanced media campaigns • Temporary use ban • Non-essential use ban • Rota cuts/standpipes	Undetermined
SWW	HH: Other water efficiency (policy)	Other water efficiency (policy)	HH_P_002	In this intervention water labelling of relevant products is legislated as mandatory and managed by government. The scheme would be operated in association with Building Regulations and minimum standards (i.e. based on changes to The Water Supply (Water Fittings) Regulations 1999). This would mean that only products performing at a baseline level will be allowed on the market and referenced in the Building Regulations. This would require not only the development of the labelling policy but also the development and agreement on the baseline standard and the amendment of the relevant Building Regulations. This has now been mandated by Defra[16], and will be implemented by Government by early 2025.	Undetermined
SWW	NHH: Water audit, retrofitting indoor water efficiency devices, water efficiency customer education / awareness.	NHH water audit, retrofitting indoor water efficiency devices, water efficiency customer education/awareness	NHH_A_001a NHH_A_001b NHH_A_001c NHH_A_001d NHH_A_001e NHH_A_001f NHH_A_001g NHH_A_001h NHH_A_001i NHH_A_001j. NHH_A_001k NHH_A_001li NHH_A_001m	Business efficiency visit (BEV) targeted at specific sectors. Water efficiency devices will be retrofitted and advice given on water efficiency. Simple wastage fixes will take place where feasible.	Undetermined

[16] DEFRA (2022) *Consultation on Mandatory Water Efficiency Labelling*. Available at: Consultation on mandatory water efficiency labelling (defra.gov.uk)

WRZ	Option Ref	Option Type	Options	Description	Yield (Ml/d)
			NHH_A_002 NHH_A_003a NHH_A_003b NHH_A_003c / NHH_A_004 NHH_A_003d NHH_A_005 NHH_A_006 (NHH_A_001_golf) NHH_A_007 NHH_E_005		
SWW	NHH: Metering other selective	Metering other selective (Non-Household customers)	NHH_M_002a NHH_M_002b NHH_M_003	This option includes interventions involving meter upgrades, increasing meter reading frequency and issuing water saving devices.	Undetermined
SWW	NHH: Water efficiency customer education / awareness	Water efficiency customer education / awareness (advice and guidance)	NHH_E_001 NHH_E_003 NHH_E_002a NHH_E_002b		
SWW	NHH: Other water efficiency (rainwater harvesting)	Other water efficiency (rainwater harvesting).	NHH_N_008	Work with the respective businesses, to use less potable water, by helping them develop their own sources of non-potable water.	Undetermined
SWW	NHH: Water reuse	Water reuse (third party)	NHH_N_005	Involves reusing treated wastewater effluent from industrial users as an alternative supply. The reclaimed water could be used for industrial/commercial use rather than potable water.	Undetermined

Table 0.6: New Supply and Drought Options

WRZ	Option Ref	Supply/ Drought	Scheme Type	Option Name	Description	Yield (Ml/d)
Bournemouth	DB1	Drought	Licence change	Wimborne Borehole	Connection of disused source to existing WTW using a new pipeline. 2ML/d benefit for 1-3 months.	2

WRZ	Option Ref	Supply/ Drought	Scheme Type	Option Name	Description	Yield (Ml/d)
Bournemouth	DB2	Drought	Licence change	Stanbridge Licence	Increase abstraction from existing sources using existing assets. 12.5ML/d benefit for 2-6 weeks.	12.5
Colliford	DC1	Drought	Licence change	Restormel Licence	Increase abstraction for 3 months to 20-40ML/d. 5-10ML/d benefit annualised.	110
Colliford	DC2	Drought	Licence change	Stannon Lake Licence	Temporary installation in place. Permanent solution data is provided. 4ML/d for 2-4 months benefit from DP.	8
Colliford	DC3	Drought	Transfer of water	Porth Reservoir and Rialton Intake	Re-commencing abstraction from licence resource. Temporary WTW eel screen, laying of pipelines and installation of pumps required.	4
Colliford	DCS1/E	Drought	Conjunctive use	Colliford not releasing compensation flows when making supply releases.	Licence variation – no infrastructure/build associated.	2.3
Colliford	DCS11/E	Drought	Conjunctive use	Siblyback not releasing compensation flows when making supply releases	Licence variation - no infrastructure/build associated.	1.5
Colliford	DCS2/E	Drought	Licence change	Parklake Licence	Increase abstraction at existing source using new pumps. 4ML/d benefit for 6 months.	4 for 6 months
Colliford	DCS3/E	Drought	New surface water	Blackpool Pit	Abstraction from new source using new abstraction infrastructure and pipeline to existing WTW. 10ML/d for 3 months benefit.	12
Colliford	DCS6/E	Drought	New surface water	Hawks Tor Pit	Temporary installation in place.6ML/d for 6 months benefit from DP.	3.7
Roadford	DR2	Drought	New reservoir	Slade Reservoir	Abstraction of Slade Reservoir through existing pipeline to WTW by re-introducing a disused licence.	1
Roadford	DR3	Drought	New reservoir	Challacombe Reservoir	Reinstated water source connecting to existing WTW through existing pipework. 1-2ML/d benefit for 2 months.	1-2
Roadford	DR4	Drought	Surface water enhancement	Meldon/Vellake to Roadford	Using existing intakes and connect them to existing WTW with new pipeline. 3-5ML/d benefit for 6 months.	3-5

WRZ	Option Ref	Supply/ Drought	Scheme Type	Option Name	Description	Yield (Ml/d)
Roadford	DR5	Drought	New groundwater	Lee Moor unused quarries	New intakes connected to a new WTW via a new pipeline and a new pipeline to existing distribution network. 2-4ML/d for 3-6 months	2-4
Roadford	DRS15/E	Drought	Conjunctive use	Roadford not releasing compensation flows when making supply releases	Licence variation – no infrastructure/build associated.	3.7
Roadford	DRS18/E	Drought	Conjunctive use	Lyd April to May	Abstract from the River Lyd and transfer into Roadford Reservoir in November and December. Extend the Level 1 Drought Permit (January to March) abstraction period.	40 for 2 months
Wimbleball	DW1	Drought	Groundwater abstraction	Brampford Speke and Stoke Canon (North Exeter Boreholes)	Combined WIM8 and WIM9. Civil CAPEX is 25% and MEICA is 50% of original estimate due to temporary solution (i.e. hire equipment, overground pipes etc). L&C CAPEX is assumed to increase by 50% due to time requirements. All CAPEX have OB applied. Assume that OPEX & Op Carbon will increase by 50%. Embodied carbon by Civil/M&E/ICA has been assumed by applying a percentage of total CAPEX. Same rules as CAPEX for embodied carbon reduction. L&C CAPEX was removed from embodied carbon. 8MLD for 4 months benefit assumed from DP. 4MLD WAFU from WRMP scopes used to align WRMP costs with benefit.	4
Wimbleball	DW2	Drought	Conjunctive use	Hook Springs Licence	Increase abstraction using existing assets. 0.4ML/d benefit.	0.4
Wimbleball	DW3	Drought	Conjunctive use	Wilmington Springs Licence	Wilmington Springs annual abstraction licence.	0.4
Wimbleball	DW4	Drought	Conjunctive use	Wimbleball not releasing compensation flows when making supply releases.	No infrastructure required. No compensation flow.	1
Bournemouth	BNW16	Supply	Water reuse	Christchurch and Holdenhurst WWTW IPR 3 - further treatment and transfer to Knapp Mill WTW	TBC	40
Bournemouth	BNW18	Supply	WTW upgrades	Alderney WTW - Reduce Treatment Losses	TBC	1.5-2

WRZ	Option Ref	Supply/ Drought	Scheme Type	Option Name	Description	Yield (Ml/d)
Bournemouth	BNW19	Supply	WTW upgrades	Knapp Mill WTW - Reduce Treatment Losses	TBC	1.5-2
Colliford	COL16	Supply	WTW upgrades	College WTW Improvements - treatment and distribution system	TBC	2.5
Colliford	COL22	Supply	Distribution capacity expansion	Roadford to Colliford via Saltash	Pump installation/upgrade at Winston Beacon to supply area in St Cleer. Installation and upgrade of pumping station at Winston Beacon. Use of the existing network to supply St Cleer WTW and Bastreet WTW via Winstone Beacon SR and Kit Hill SR.	2
Colliford	COL23	Supply	Distribution capacity expansion	Mayflower WTW to Kit Hill (St. Cleer)	TBC	10
Colliford	COL24	Supply	Distribution capacity expansion	Northcombe WTW to Launceston	New 21km pipeline from Northcombe to Launceston to transfer up to 5 Ml/d of treated water to support the Colliford WRZ.	5
Colliford	COL25	Supply	Distribution capacity expansion	Brent Tor to Launceston	TBC	10
Colliford	COL26	Supply	Distribution capacity expansion	Restormel WTW to East Cornwall	TBC	40
Colliford	COL28	Supply	Desalination	Desalination Plant at Par	New desalination plant.	10
Roadford	ROA20	Supply	Distribution capacity expansion	Mayflower WTW to South Devon treated (also known as: Mayflower WTW to Littlehempston, Mayflower WTW/Rodborough to Gallows Gate NRP)	Transfer of up to 40Ml/d of treated water from Mayflower WTW to Littlehempston WTW, through approximately 37.3km of existing pipeline. New pumping station on existing Littlehempston WTW site.	40
Roadford	ROA21	Supply	Distribution capacity expansion	Rodborough to South Devon (Littlehempston WTW) RAW (also known as Rodborough Tank at Mayflower WTW to Littlehempston WTW)	Transfer of up to 40Ml/d of raw water from Mayflower WTW to Littlehempston WTW, through approximately 37.3km of existing pipeline. New pumping station on existing Littlehempston WTW site.	40

WRZ	Option Ref	Supply/ Drought	Scheme Type	Option Name	Description	Yield (Ml/d)
Wimbleball	WIM14	Supply	Distribution capacity expansion	Whitecross distribution upgrade	TBC	5
Wimbleball	WIM15	Supply	Distribution capacity expansion	Northcombe to Allers	New 74km pipeline connecting Northcombe WTW to Allers WTW	20
Wimbleball	WIM16	Supply	Water recycling	FE reuse Exmouth Maer Lane WWTW	Works are planned for the transmission system from Countess Weir STW and Maer Lane STW, with the proposed Water Recycling Centre (WRC) Plant near the River Exe to provide resilience to Pynes WTW.	10

The key findings of the SEA include the results of the environmental assessments on a programme-wide scale for SWW's preferred plan, known as the Best Value Plan (BVP).

Further assessment on alternative plans has not been undertaken at this stage due to delays in the modelling process and a lack of information on plan alternatives. However, an assessment of the adaptive plan, which includes the options which are anticipated to be included within the plan alternatives, has been undertaken. This can be found within **Section 10.4** of the SEA Environmental Report. The assessment of plan alternatives is anticipated to be undertaken within the next revision of this report, which is expected to be in December 2023.

The below tables (**Table 0.7** and **Table 0.8**) show the SEA summary assessment for each of the updated dWRMP24 options that make up the BVP. Commentary on the findings of this assessment can be found in the text below the tables.

An Adaptive Plan was also assessed however was not selected by SWW to form the preferred plan. Further information on the Adaptive Plan can be found within the SEA Environmental Report (**Section 10.4**).

Table 0.7: Best Value Plan short term (construction) SEA summary

Option Ref	ST / LT	SEA Topics																	
		Biodiversity			Water			Soil	Air	Climate		Hist. Env	Landscape	Population and Health			Material assets		
		1.1	1.2	1.3	2.1	2.2	2.3	3	4	5.1	5.2	6	7	8.1		8.2	9.1		9.2
COL 15	ST	-	-	0	0	-	-	0	-	--	0	-	-	+	-	-	-		0
WIM 14	ST	High Level Screening undertaken; SEA not yet completed																	
ROA21		High Level Screening undertaken; SEA not yet completed																	
WIM 18	ST	SRO and not assessed under the SEA framework.																	
BNW 8	ST	SRO and not assessed under the SEA framework.																	
BNW 7	ST	SRO and not assessed under the SEA framework.																	
BNW 1	ST	-	-	0	0	0	0	-	-	-	0	0	-	0		0	-		0
BNW 14	ST	-	--	-	--	-	0	-	-	--	0	-	-	+	-	-	-		-
BNW 6	ST	-	-	-	-	-	0	-	-	0	0	0	0	+++	-	-	-		0
HH: Metering	ST	0	0	0	0	0	0	0	0	0	0	0	0	0		0	-	0	0
NHH: Metering other selective	ST	0	0	0	0	0	0	0	0	0	0	0	0	0		0	-		0
HH: Other water efficiency (incentives)	ST	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0		0
NHH: Water audit, retrofitting indoor water efficiency devices, water efficiency customer education / awareness.	ST	0	0	0	0	0	0	0	0	0	-	0	0	0		0	0	-	0

Option Ref	ST / LT	SEA Topics																	
		Biodiversity			Water			Soil	Air	Climate		Hist. Env	Landscape	Population and Health			Material assets		
		1.1	1.2	1.3	2.1	2.2	2.3	3	4	5.1	5.2	6	7	8.1	8.2	9.1	9.2		
NHH: Water reuse	ST	0	0	0	0	0	0	0	0	-	0	0	0	0	0	-	-		
NHH: Other water efficiency (rainwater harvesting)		0	0	0		0	0	0	0	0	-	0	0	0	0	0	-	0	
HH: Water audit	ST	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	
HH: Rainwater harvesting	ST	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	
HH: Other water efficiency (policy)	ST	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	
Distribution options	ST	-	-	0	0	0		0	-	0	-	0	-	0	0	-	0	-	

Table 0.8: Best Value Plan long-term (operation) SEA summary

Option Ref	ST / LT	SEA Topics															
		Biodiversity			Water			Soil	Air	Climate		Hist. Env	Landscape	Population and Health		Material assets	
		1.1	1.2	1.3	2.1	2.2	2.3	3	4	5.1	5.2	6	7	8.1	8.2	9.1	9.2
COL 15	LT	-	-	0	-	0	+	0	0	-	+ -	0	0	+	-	-	0
WIM 14	LT	High Level Screening undertaken; SEA not yet completed															
ROA21		High Level Screening undertaken; SEA not yet completed															
WIM 18	LT	SRO and not assessed under the SEA framework.															
BNW 8	LT	SRO and not assessed under the SEA framework.															
BNW 7	LT	SRO and not assessed under the SEA framework.															
BNW 1	LT	0	--	0	--	0	+ -	0	0	0	+	0	0	+	0	-	0
BNW 14	LT	-	--	0	--	+	++	-	-	-	+	0	0	0	0	-	0
BNW 6	LT	- +	- +	-	-	- +	++	0	-	0	+	0	0	+	-	-	-
HH: Metering	LT	0	0	0	0 +	0	0 +	0	0	0	0	0	0	+	0	0	0
NHH: Metering other selective	LT	0	0	0	+	0	+	0	0	0	0	0	0	+	0	0	0
HH: Other water efficiency (incentives)	LT	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0
NHH: Water audit, retrofitting indoor water efficiency devices, water efficiency	LT	0	0	0	+	0	+	0	0	0	0	0	0	+	0	0	+

Option Ref	ST / LT	SEA Topics														
		Biodiversity			Water			Soil	Air	Climate		Hist. Env	Landscape	Population and Health		Material assets	
		1.1	1.2	1.3	2.1	2.2	2.3	3	4	5.1	5.2	6	7	8.1	8.2	9.1	9.2
customer education / awareness.																	
NHH: Water reuse	LT	0	0	0	+	0	+	0	0	0	0	0	0	+	0	0	0
NHH: Other water efficiency (rainwater harvesting)	LT	0	+	0	+	+	+	0	0	+	+	0	0	+	0	+	0
HH: Water audit	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HH: Rainwater harvesting	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HH: Other water efficiency (policy)	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Distribution options	LT	0	0	0	+	0	+	0	0	0	0	0	0	+	0	0	0

Best Value Plan short-term (construction) effects

One potential major positive short-term (construction) effect has been identified for the BVP (see **Table 10.1**). This is associated with option BNW6 and is related to the option having substantial CAPEX costs which may benefit the local economy.

No other positive short-term effects have been identified.

No major negative short-term effects have been identified. However, moderate adverse effects have been identified for options BNW14 and COL15. For BNW14, a moderate short-term effect has been identified for objective (1.2) "*Protect, conserve and enhance biodiversity, including priority species, vulnerable habitats and habitat connectivity*", due to loss of habitat and (2.1) "*Protect and enhance the quality of the water environment and water resources*" due to the potential for deterioration of WFD status. For COL15, a moderate negative effect has been identified for objective (5.1) "*Reduce embodied and operational carbon emissions*" due to the anticipated infrastructure required and the embodied carbon associated with this.

The potential for minor negative effects has been identified for every objective. The demand options do present fewer minor negative scores, due to these options requiring less construction works and the nature of these options keeping water in the environment rather than taking from it.

Minor negative effects have been identified for at least one of the biodiversity objectives (1.1-1.3) for option COL15, BNW1, BNW14, BNW6 and the distribution demand options. This is related to the potential for these options to remove habitats, disturb biodiversity or designated sites.

Minor negative effects have also been identified for at least one of the water objectives (2.1-2.3) for COL15, BNW14 and BNW6. This is associated with the options having potential for a negative effect on water resources, increasing the potential for flooding or having the potential for negative effects on surface or groundwater bodies e.g. through pollution.

Options BNW1, BNW14, BNW6 and distribution options have been identified as having potential for negative short-term effects on soil objective (3) "*Protect and enhance the functionality, quantity and quality of soils, including the protection of sites of geological importance*". This is related to construction activities damaging or disturbing soil, or the location being located within particularly highly graded agricultural land.

Options COL15, BNW1, BNW14 and BNW6 have been identified as having potential for negative short-term effects on air quality objective (4) "*Reduce and minimise air emissions*". This is related to construction activities and increased traffic associated with construction having the potential to reduce local air quality.

The following options have been assessed as having a minor negative effect on objective (5.1) "*Reduce embodied and operational carbon emissions*"; BNW1, BN14, NHH: Water reuse, NHH: Other water efficiency (rainwater harvesting), distribution options and NHH: Water audit, retrofitting indoor water efficiency devices, water efficiency customer education / awareness. This is related to the embodied carbon associated with the infrastructure required or car journeys needed to carry out these options.

Options COL15, BNW14 and distribution options have all been identified for having the potential for minor negative effect on the historic environment. This is due to the possibility that construction activities could harm designated (or non-designated) heritage assets such as Listed Buildings or Conservation Areas.

For landscape, COL15, BNW1 and BNW14 have all been assessed as having potential for minor negative effects. Effects are associated with the potential for construction activities to effect views or the setting of landscape sensitive areas such as AONBs.

Options COL15, BNW14 and BNW6 have been identified as having a minor negative effect on objective (8.1) "*Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing* " and (8.2) "*Maintain and enhance tourism and recreation*". Distribution options have also been assessed as having a minor negative effect on objective (8.2). These minor negative effects are associated with construction activities having the potential to disrupt or cause disturbance to daily activities, and tourism and recreation. This could include issues such as road closures and diversions.

Most options which involve construction activities are anticipated to have a minor negative effect on objective (9.1) "*Minimise resource use and waste production*". Due to waste being produced and resource required during construction. This includes options COL15, BNW1, BNW6, BNW14, HH: Metering, NHH: Metering other selective, NHH: Water reuse and NHH: Other water efficiency (rainwater harvesting). Furthermore, options BNW14, NHH: Water audit, retrofitting indoor water efficiency devices, water efficiency customer education / awareness, NHH: Water reuse and NHH: Other water efficiency (rainwater harvesting) have potential for short-term minor negative effects on objective (9.1) "Avoid negative effects on built assets and infrastructure".

Best Value Plan long-term (operational) effects

There have been no major positive long-term (operational) effects identified for the BVP.

With the plan, option BNW14 and BNW6 have been identified as having the potential for moderate positive short-term effects associated with objective (2.3) "*Deliver reliable and resilient water supplies*". This demonstrates that these options may improve resilience and reliability in the Bournemouth region.

Minor positive effects have been identified for many of the options within the BVP, this is especially so for the demand options. This demonstrates how reducing demand and ensuring water remains in the natural environment can have positive effects.

Minor positive effects have been identified for biodiversity objectives (1.1) for BNW6 and (1.2) for BNW6 and NHH: Other water efficiency (rainwater harvesting). This is associated with these options potentially improving aquatic habitats through retaining water in the system.

Minor positive effects have also been identified for at least one of the water objectives (2.1-2.3) for all options apart from COL15, HH: Other water efficiency (incentives), HH: Water audit, HH: Rainwater harvesting and HH: Other water efficiency (policy). Benefits are associated with reducing demand or abstraction rates, resulting in more water being retained in the natural environment.

Option NHH: Other water efficiency (rainwater harvesting) has been assessed as having a potential for a minor positive effect on objective (5.1) "*Reduce embodied and operational carbon emissions*". This is associated with a reduction in the volume of water needing to be treated and pumped, which requires energy and thus carbon. This options also scored minor positive in relation to objective (5.2) alongside options BNW1, BNW14 and BNW6. This is associated with better management of water and reducing the risk of flooding.

Positive effects have also been identified for objective (8.1) "*Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing*" for all options

apart from BNW14, HH: Water audit, HH: Rainwater harvesting and HH: Other water efficiency (policy). This is largely attributed to reducing demand and improving resilient water supplies.

For the material assets objective (9), one minor positive score has been identified for option NHH: Other water efficiency (rainwater harvesting), associated with reducing the dependence on public water supply. A minor positive score has also been identified for option NHH: Water audit, retrofitting indoor water efficiency devices, water efficiency customer education / awareness, associated with improving operational efficiency.

No major long-term negative effects have been identified in the BVP.

Options BNW1 and BNW14 have been identified as having the potential for moderate adverse effects on objective (1.2) "*Protect, conserve and enhance biodiversity, including priority species, vulnerable habitats and habitat connectivity*", associated with increased abstraction and habitat loss.

The same options as above (BNW1 and BNW14), have also been identified as having potential for a moderate negative effect on objective (2.1) "*Protect and enhance the quality of the water environment and water resources*", again, due to increased abstraction and the effect this could have on associated waterbodies.

Option COL15 has potential for a moderate negative effect on the climate objective (5.1) due to the operational carbon associated with this option.

Minor negative effects have been identified for supply options only. This includes options COL15, BNW1, BNW14 and BNW6.

For COL15, minor negative effects have been identified for objectives relating to biodiversity, water, air, historic environment, landscape, population and human health and material assets. These potential negative effects are related to the option increasing abstraction which could impact biodiversity and the water environment, as well as having the potential for negative effects on the historic environment. Increasing capacity at the site is also anticipated to involve an increase in energy, resulting in increased emissions.

Option BNW1 has been assessed as having potential long-term negative effects on water and material assets associated with potential for reducing water quality and ongoing energy consumption.

Option BNW14 has the potential for long-term negative effects on biodiversity, soil, air, climate and material assets. This is associated with the nature of the option involving a new intake which could affect biodiversity at the site and could potentially disturb habitats. This new infrastructure could cause long-term damage to soil and the operation energy demand may result in an increase in carbon and reduction in air quality.

For option BNW6, potential minor negative effects have been identified for objectives relating to biodiversity, water, air, climate, population and human health and material assets. These are associated with the nature of the option involving increased abstraction during the summer which may affect biodiversity at the site and could potentially disturb habitats, as well as adversely effected water quantity and quality during this time. Increased abstraction is anticipated to require an increase in energy demand which may result in an increase in operational carbon and reduction in air quality. A reduction in water quantity during the summer may also affect recreation at the option location.

Cumulative Effects

Intra cumulative effects (the compounded effect of two or more options together on a certain feature/asset) and inter cumulative effects (the effect of the options in combination with local planning allocations and major projects) of the updated dWRMP24 with other relevant plans, programmes and projects have been considered as part of the SEA process.

Intra-cumulative effects:

During the construction phase of the BVP, 12 of the SEA objectives are anticipated to have a negative short-term effect. This is partly due a number of options being in close proximity to one another. For some factors, such as air quality, carbon emissions and economic benefit, it is not necessarily the spatial proximity of the options, rather the build-up of a certain factor e.g. emissions or money which can affect the whole SWW region. This plan also presents a number of clustered options which present the risk of cumulative effects on designated sites, and environmental assets as well as an increased risk of disturbance to local communities. These negative effects would be predominantly experienced across the biodiversity, water, soils, air, climate change population and health and material asset SEA objectives. Ecological sites such as the Avon Valley SAC, SPA and Ramsar and areas of priority habitat are potentially at risk of cumulative effects as a result of degradation from construction activities. During construction there is the potential for positive effects associated with population and health SEA objectives. These are likely to arise due to the economy benefits during the construction phase.

Long-term negative operational effects are likely to be experienced across eight SEA objectives, with specific reference to water and climate, due to the options resulting in an increase in operational carbon emissions. There is anticipated to be cumulative effects experienced several waterbodies, such as the river Avon and Stour (Lower) as a result of over-abstraction and changes to flow and water quality.

The demand options offer several opportunities across the region, associated with reducing the volume of water that is abstracted, treated and pumped across the SWW region. This may also benefit water dependent habitats and biodiversity through retaining more water in the natural environment. Although the construction stage may lead to high emissions (related to vehicle journeys and embodied carbon of materials), the energy saving through reduced pumping and treatment of water could result in a major positive cumulative effect on the climate objective 5.1.

Inter cumulative effects: Cumulative (Inter) effects of the updated dWRMP24 with other relevant plans, programmes and projects have been considered against the SEA assessment methodology. These include the following:

- South West Water Final Drought Plan (2022);[17] / [18]
- South West Water Isles of Scilly Draft Final Drought Plan (September 2022)[19]
- SWW and Bournemouth Water Final Water Resource Management Plan (2019);[20]
- Neighbouring water companies' WRMP and Drought Plans:

[17] South West Water (2022) *Revised Draft South West Drought Plan.* Available at: https://www.southwestwater.co.uk/environment/a-precious-resource/drought-plan/

[18] South West Water (2022) *Bournemouth Water Final Drought Plan*. Available at: https://www.southwestwater.co.uk/siteassets/document-repository/environment/sww-bw-final-drought-plan-september-2022.pdf

[19] South West Water (2022) *Isles of Scilly Draft Drought Plan*. Available at: https://www.southwestwater.co.uk/siteassets/document-repository/environment/sww-bw-final-drought-plan-september-2022.pdf

[20] South West Water (2019) *SWW and Bournemouth water final water resource management plan*. Available at: https://www.southwestwater.co.uk/siteassets/document-repository/environment/sww-bw-wrmp19---finalplan_aug2019.pdf

  - Wessex drought plan; and
  - Southern Water drought plan.
  - Wessex Water dWRMP24[21]
  - Southern Water dWRMP24[22]
- National Policy Statements[23] and National / Regional Infrastructure Plans[24];
- Canal & River Trust Management Plans[25];
- Relevant Local Development Frameworks;
- Environment Agency Drought Response: our framework for England[26]; and
- Relevant Major projects.

The potential for inter-cumulative effects has been identified, particularly in relation to local developments and dWRMP24 options. These should be monitored by SWW and mitigated through appropriate environmental assessments and timing of works. Inter-cumulative effects will be reviewed as the options are further developed.

Mitigation and Monitoring

At this stage, options are still at an early stage of development and further studies and assessments and site specific mitigation will be detailed at a later project stage.

The mitigation hierarchy should be followed as far as possible to reduce adverse environmental effects. As discussed with relevant stakeholders during workshops over Summer 2023, a detailed monitoring and mitigation plan is still under development and will be reflected in the December 2023 update.

Mitigation measures and enhancement opportunities are identified in the individual option assessments. HRA AAs, WFD Level 2 Assessments and INNS Assessments were required for a number of the selected options and specific mitigation was developed as part of these processes and included in the detailed SEA options assessment matrices.

Example high-level, plan-wide mitigation measures per SEA topic include:

- Biodiversity, Flora and Fauna: Habitat would be reinstated on completion of development, or if unavoidable damage or loss, compensatory habitat would be considered in line with BNG requirements;
- Water: Best practice construction methods would be implemented to minimise water deterioration (e.g., dust suppression and pollution control measures);
- Soils: Construction on greenfield land would be avoided where possible, to reduce the impacts on undisturbed soils;

[21] Wessex Water (2022) *Water Resources Management Plan.* Available at: https://www.southernwater.co.uk/our-story/water-resources-management-plan/draft-wrmp-24-technical-documents

[22] Southern Water (2022) *Draft WRMP24 Technical Documents*. Available at: https://www.southernwater.co.uk/our-story/water-resources-management-plan/draft-wrmp-24-technical-documents

[23] Planning Inspectorate *National Policy Statements*. Available at: https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/national-policy-statements/

[24] Planning Inspectorate *National Infrastructure Planning* Available at: https://infrastructure.planninginspectorate.gov.uk/projects/

[25] Canal and River Trust (2020) *Ways to Save Water*. Available at: https://canalrivertrust.org.uk/specialist-teams/managing-our-water/ways-to-save-water

[26] Environment Agency (2017) *Drought Response: our framework for England*. Available at: https://www.gov.uk/government/publications/drought-management-for-england

- Air: Best practice mitigation measures would be implemented to mitigate potential air quality effects arising from construction works and increased vehicular movement. These mitigation measures would also include dust suppression and pollution control measures;
- Climatic Factors: The use of substitute materials with lower embodied carbon and use of renewables to power new facilities would be considered;
- Population and Human Health: Where applicable, route realignments would be amended or trenchless techniques used to avoid direct impacts on property and community assets;
- Historic Environment: Consultation with statutory bodies would be undertaken to ensure impacts to heritage assets would be avoided or mitigated appropriately according to statutory requirements;
- Landscape: Where possible, new infrastructure would be located close to existing above ground-built assets, as this could lower the long-term impacts on visual amenity; and
- Material Assets: Where possible, seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact.

The mitigation hierarchy should be followed as far as possible to reduce adverse environmental effects. As discussed with relevant stakeholders throughout workshops during Summer 2023, a detailed monitoring and mitigation plan for the HRA is still under development and will be reflected in the December 2023 update.

Monitoring will be carried out by SWW as part of their WRMP processes. Monitoring will help ensure that the identified SEA objectives are being achieved and allows for early identification of unforeseen adverse effects and thus for appropriate remedial action to be taken. Monitoring will be an important requirement to measure performance and ensure the WRMP24 is being successfully implemented. Department for Communities and Local Government (DCLG) SEA guidance[27] states that it is inappropriate to monitor everything, and monitoring proposals should be focused on the following areas:

- Identifying potential breaches of international, national, or local legislation, recognised guidelines, or standards.
- Significant environmental effects which may give rise to irreversible damage, with a view to identifying trends before such damage occurs.
- Where there was any uncertainty in the SEA and where monitoring would enable prevention or mitigation measures to be taken.

Consultation and Next Steps

The SEA Consultation

The Environmental Report was issued for a three month consultation period from February to May 2023 to the three statutory bodies: the EA, Natural England, and Historic England, as well as being made available to wider stakeholders.

A further consultation on the updated dWRMP24 will be held from October 2023.

SWW welcomes your views on the SEA Environmental Report on the following key questions:

- **Do you have any comments on the effects identified in the SEA?**

[27] DCLG (2005) A Practical Guide to the Strategic Environmental Assessment Directive. Available at: https://www.gov.uk/government/publications/strategic-environmental-assessment-directive-guidance Date accessed: 26/09/22

- **Do you have any comments on the proposed mitigation measures?**
- **Do you have any comments on the assessment of the preferred plan (BVP)?**

Following the Environmental Report consultation period, all further consultation responses will be carefully reviewed and tabulated, and taken into account as far as possible. Any significant alterations to the updated dWRMP24 as a result of the consultation will be assessed in terms of their environmental implications and influence on the revision of the dWRMP24. The final SEA Environmental Report will be amended as necessary to reflect any changes. These changes will be set out in the SoR.

Next Steps

As the updated dWRMP24 is further developed the SEA will be updated to include the 35 additional new options. The Environmental Report will be updated to reflect any changes to the updated draft WRMP24 as it develops into the final Plan. Alongside this, the HRA AA, WFD Level 2 assessments, BNG, NCA and INNS risk assessments will be updated to include the additional options.

Furthermore, the programme level assessment and cumulative effects of the BVP will be updated to incorporate the findings of these additional assessments. Additional programme level assessments of plan alternatives will also be undertaken if further plan alternatives are identified by SWW. The potential cumulative effects of these will be assessed.

Following the consultation period, comments received from the Statutory Consultees and other stakeholders will be recorded and any necessary amendments will be made to the SEA Environmental Report. Such comments will be responded to within SWW's SoR and the action taken to address these comments will also be set out within a consultation log will be appended to the final Environmental Report.

Following adoption of the SWW WRMP24, a Post-Adoption Statement will be produced which outlines how the SEA process has influenced the development of the WRMP, how consultation comments were taken into consideration and how the WRMP24 will be monitored. This summary will provide enough information to make it clear how the SWW WRMP24 was influenced as a result of the SEA process and consultation.

Monitoring of the SEA process will be carried out by SWW when the WRMP24 is implemented. Monitoring of the WRMP24 will be incorporated with SWW's annual monitoring processes to help ensure positive sustainability outcomes for the WRMP24.

An updated full SEA Assessment and associated Technical Appendices is to be issued in December 2023. This will include the relevant updates to ensure the SEA is in accordance with the SEA regulations and guidance.

1 Introduction

1.1 Introduction

1.1.1 Water companies have a statutory obligation to produce a Water Resources Management Plan (WRMP), which sets out how a company intends to maintain the balance between supply and demand for water over a minimum 25-year period. New WRMPs are prepared every five years and SWW is due to publish its next WRMP in 2024. In the development of a WRMP, companies must follow the Water Resource Planning Guidelines[28] ('Guidelines') produced by the Environment Agency, Natural Resources Wales and Ofwat. WRMPs should ensure a secure and sustainable supply of water and focus on efficiently delivering the outcomes that customers want, while reflecting the value that society places on the environment. The Guidelines state that in developing a WRMP in England and Wales, water companies should screen for a Strategic Environmental Assessment (SEA) and carry out a full SEA if required, including scoping the contents of the SEA.

1.1.2 A screening exercise determined that an SEA is required for the South West Water (SWW) WRMP 2024 ('WRMP24') under the *Environmental Assessment of Plans and Programmes Regulations 2004* ('SEA Regulations')[29], which require an assessment of the effects of certain plans and programmes on the environment.

1.1.3 The SWW WRMP24 SEA has been undertaken in the context of the regional planning currently being carried out. SWW falls under the WCWR Draft Regional Plan, which has been reviewed as part of this Environmental Report to ensure the proposed approach to undertaking the SEA aligns with the regional plan. In the WCWR Draft Regional Plan there are Strategic Resource Options (SROs) which are significant strategic options spanning across water companies. The SWW area includes three SROs of which one is split into four separate options which are considered in this Environmental Report and may form part of the final WRMP24.

1.1.4 This report is the WRMP24 SEA Environmental Report and presents the results of the SEA assessment undertaken on the options within the WRMP (**Annex 6**: **Appendices L, M, N, O, P, Q**). Additional environmental assessments have been undertaken and the findings incorporated into the SEA, including Habitat Regulations Assessment (HRA), Water Framework Directive (WFD) Assessment, Natural Capital Assessment (NCA), Biodiversity Net Gain (BNG) and Invasive Non Native Species (INNS). These studies are presented in the respective technical appendices of this Environmental Report (**Annex 2: Appendix H; Annex 3: Appendix I; Annex 4: Appendix J; and Annex 5: Appendix K**). The environmental assessments have been used to support the development of the updated dWRMP.

1.2 The SEA Process

1.2.1 An SEA is required for the SWW WRMP24 under the SEA Regulations. The SEA works to inform the decision-making process through the identification and assessment of significant and cumulative effects that a plan or programme may have on the environment. The SEA process is conducted at a strategic level and enables consultation on the potential effects of a plan with a wide range of stakeholders.

1.2.2 According to the SEA Regulations Part 2 (5):

[28] EA, NRW and Ofwat (2022) *Water Resources Planning Guideline*. Available at: https://www.gov.uk/government/publications/water-resources-planning-guideline/water-resources-planning-guideline

[29] The SEA Regulations were transposed into United Kingdom (UK) law from the European Union Directive 2001/42/EC, more commonly known as the SEA Directive. The SEA Regulations remain UK law following the UK's exit from the EU.

'The responsible authority shall carry out, or secure the carrying out of, an environmental assessment, in accordance with Part 3 of these Regulations, during the preparation of that plan or programme and before its adoption or submission to the legislative procedure'.

1.2.3 Schedule 2 (6) confirms that the list of topics to be considered includes:

'The likely significant effects on the environment, including short, medium and long-term effects, permanent and temporary effects, positive and negative effects, and secondary, cumulative and synergistic effects, on issues such as—

a. *biodiversity;*
b. *population;*
c. *human health;*
d. *fauna;*
e. *flora;*
f. *soil;*
g. *water;*
h. *air;*
i. *climatic factors;*
j. *material assets;*
k. *cultural heritage, including architectural and archaeological heritage;*
l. *landscape; and*
m. *the inter-relationship between the issues referred to in sub-paragraph (a) to (i).*

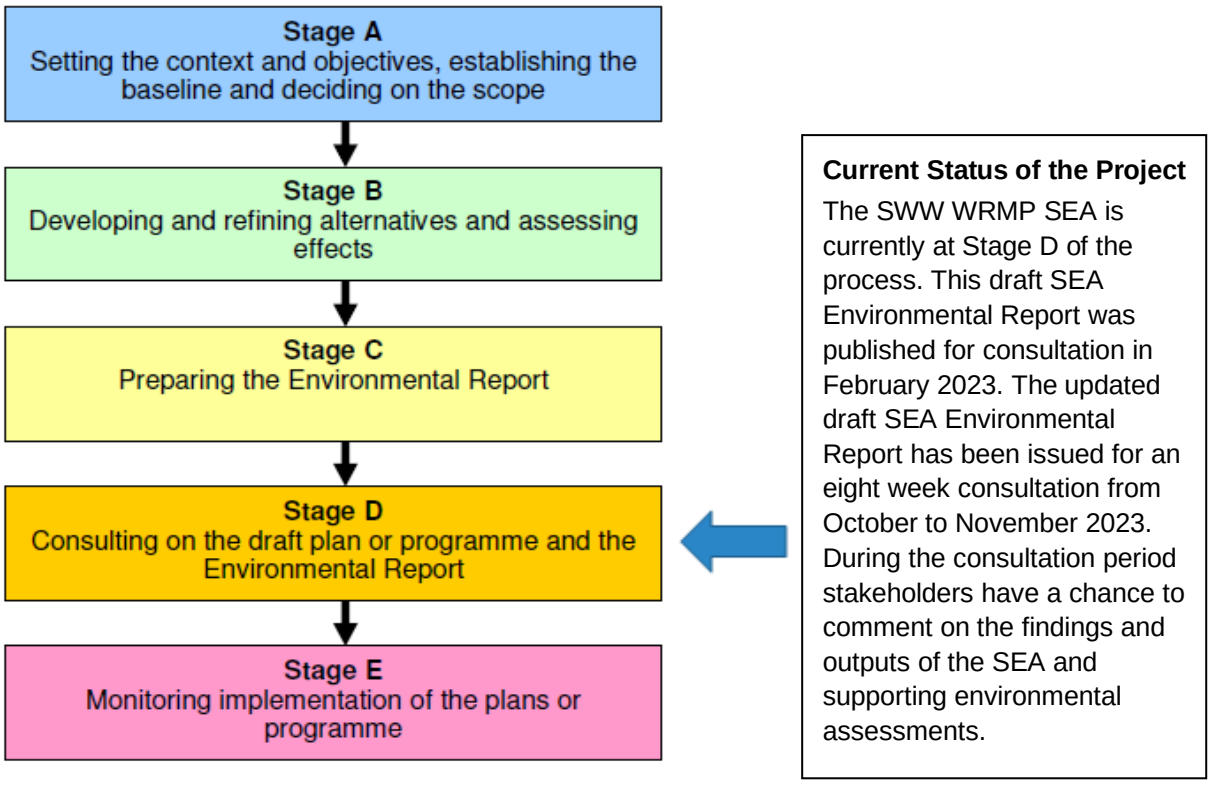
1.2.4 The SEA process is split into five different stages detailed in **Figure 1.1** below. **Annex 1: Appendix A** presents the different tasks involved in each of the SEA Stages.

1.2.5 The SEA process follows current and emerging guidance on the application of SEA within water resource planning including incorporating best practice within the proposed approach. The current and emerging guidance documents include:

- Water Resources Planning Guidelines, 2022, Environment Agency, Natural Resources Wales and Ofwat[30];
- Environmental Assessment Guidance for Water Resources Management Plans and Drought Plans, 2021, UK Water Industry Research;
- Strategic Environmental Assessment: Core Objective Identification, 2020, All Company Working Group;
- Best practice topic guidance on SEA and biodiversity, climate and heritage from Natural England, the Environment Agency and Historic England;
- Water Resources Planning Guideline Supplementary Guidance – Environment and society in decision-making (England), 2021, Environment Agency; and
- A Practical Guide to the SEA Directive, 2005, Department for Communities and Local Government.

[30] EA, NRW and Ofwat (2022) *Water Resources Planning Guideline*. Available at: https://www.gov.uk/government/publications/water-resources-planning-guideline/water-resources-planning-guideline

Figure 1.1: SEA Process Stages



Source: A practical Guide to the Strategic Environmental Assessment Directive, 2005[31]

1.2.6 During production of the Scoping Report (May 2022) as part of Stage A of the SEA process, an SEA Framework was developed which included SEA objectives and indicators (see **Annex 1: Appendix E**). The SEA objectives and indicators have been used during the assessment stage (Stage B) to appraise the WRMP24 options, as well as the preferred plan (Best Value) and alternatives (Least Cost and Worst Case) to determine their potential environmental effects. The WRMP24 SEA objectives support the SWW outcomes for customers and the environment, the Defra Guiding Principles for water resource planning, and the Defra 'Creating a great place for living: Together we are building a green and healthy future'.

1.2.7 The SEA Environmental Report follows an iterative process and subsequent updates will be required to address development of options and programme plans. Following the updated draft consultation period, an updated Statement of Response (SoR) will be published that will include information on any changes made as a result of consultation feedback; and outstanding assessments will be provided.

1.2.8 During the WRMP development, as part of the updated dWRMP24, 35 new options (including 15 supply and 20 drought) have been identified, of which 29 are yet to undergo environmental assessment at the time of writing.

1.2.9 Due to time constraints and availability of information these 29 options have yet to undergo environmental assessments (SEA, WFD, HRA, INNS, BNG and NCA). As an interim measure, High-Level Screenings (HLS) have been undertaken using a Red/Amber/Green (RAG) approach to identify options which present potential for adverse environmental risks. Full

[31] DCLG (2005) *A 'Practical Guide to the Strategic Environmental Assessment Directive', Pages 26 – 29.* Available at: https://www.gov.uk/government/publications/strategic-environmental-assessment-directive-guidance

assessments will be presented in the subsequent revision of the SEA Environmental Report, that will be provided as part of the updated SoR to be published in December 2023.

1.2.10 The remaining six options have been assessed as part of the SWW Final Drought Plan September 2022, via Environmental Assessment Reports (EARs).

1.2.11 During summer 2023, it was understood that Iles of Scilly options would be removed from the WRMP24 for inclusion under AMP7. However, as part of the updated dWRMP24 development these options have been retained as WRMP24 feasible options. Therefore, due to the timescales of this change and availability of information these assessments have not been updated as part of the updated SEA Environmental Report. A full review of Iles of Scilly options will be undertaken in autumn 2023 to address outstanding consultation comments for the December 2023 publication.

1.3 Purpose of the Environmental Report

1.3.1 The purpose of this Environmental Report (Stage D) is to present the results of the SEA of the updated dWRMP24 including the potential effects (positive and negative) of the options included within the draft plan (covering Stages B to D, in **Figure 1.1** above). This includes assessment of in-combination and cumulative effects, mitigation and enhancement measures, and monitoring proposals. The Environmental Report has been published for re-consultation alongside the SWW updated dWRMP24.

1.3.2 The SEA process has involved the assessment of 40 water resource supply options and 15 demand reduction option scenarios against the SEA framework. A further 29 options including 15 supply and 14 drought have been identified through the development of the WRMP24. These new options have undergone an HLS. Due to the volume of options, this Environmental Report presents the high-level findings of the detailed option assessment matrices and summaries of effects against the SEA objectives and HLS criteria. The detailed options assessment matrices have been provided to the Environment Agency, Natural England, Historic England and Ofwat for consultation (**Annex 6: Appendix L, M, N, O, P, Q**). The HLSs have not been provided as part of this submission, but can be provided on request.

1.3.3 The structure of the Environmental Report is presented below:

- Chapter 1 – Introduction to the SWW WRMP24, the SEA Process and Requirements;
- Chapter 2 – Description and Context of the WRMP24;
- Chapter 3 – Summary of the Scoping Stage Tasks and SEA Scoping Report Consultation;
- Chapter 4 – Relationships with Other Plans and Programmes Review;
- Chapter 5 – Baseline Environmental Review;
- Chapter 6 – Key Sustainability Issues and Opportunities;
- Chapter 7 – Development of SEA Framework;
- Chapter 8 – Environmental Assessment Methodology;
- Chapter 9 – Assessment of the updated dWRMP24 Options;
- Chapter 10 – Appraisal of the WRMP24 and Decision Making;
- Chapter 11 – Mitigation and Monitoring Proposals;
- Chapter 12 – Consultation and Next Steps;
- Annex 1:
  - Appendix A – SEA Process Tasks;
  - Appendix B – Policy, Plans and Programmes Review;
  - Appendix C – Baseline Information;

  - Appendix D – Baseline Maps;
  - Appendix E – Assessment Scoring Criteria;
  - Appendix F – SEA Scoping Report Consultation Log;
  - Appendix G – SEA Quality Assurance (QA) Checklist;
- Annex 2:
  - Appendix H – HRA Technical Note;
- Annex 3:
  - Appendix I – WFD Assessment Technical Note;
- Annex 4:
  - Appendix J – BNG and NCA Assessments Technical Note;
- Annex 5:
  - Appendix K – INNS Assessment Technical Note;
- Annex 6:
  - Appendix L – Bournemouth WRZ SEA Assessment;
  - Appendix M – Colliford WRZ SEA Assessment;
  - Appendix N – Roadford WRZ SEA Assessment;
  - Appendix O – Wimbleball WRZ SEA Assessment;
  - Appendix P – Isles of Scilly WRZ SEA Assessment; and
  - Appendix Q - Demand Options SEA Assessment.

1.4 Limitations of the Environmental Report

1.4.1 Mott MacDonald has relied on published data and information provided by SWW and from third party organisations in the production of this SEA Environmental Report. The baseline information collected as part of the SEA Scoping Stage and presented in this Environmental Report is the most up-to-date information currently available, however it is possible that conditions described in this report may change over time. The consultation process aims to address and minimise any gaps in information to ensure all potential environmental effects have been considered with regard to the WRMP24.

1.4.2 The SWW WRMP24 covers a substantial geographical area. Therefore, the baseline summarised in this report is a high-level review of conditions within the region. A Geographic Information System (GIS) tool has been developed to hold location specific baseline information. This tool has been used during the options assessment to provide more detailed information to enable the assessment of effects of each option and the in-combination effects of the updated draft plan. A range of baseline datasets under each SEA objective have been used (as set out in **Annex 1: Appendix E**).

1.4.3 Detailed local baseline data such as local (non-designated) wildlife sites, Local Plan housing allocations and minerals and waste allocations were included where available. County Wildlife Site (CWS) information has been provided for Devon, Cornwall and Somerset County Councils.

1.4.4 The option assessments and in-combination / cumulative effects assessments have been based on options information provided by SWW, which was digitised for GIS usage by Mott MacDonald. It should be noted that options were at varying levels of development and therefore, the information available to inform the options assessments varied in detail.

At the time of writing, no alternative plans have been provided to Mott MacDonald for inclusion within the in-combination / cumulative effects assessments, therefore only the preferred plan and adaptation has been assessed. These plans will be assessed Autumn 2023, for inclusion in the next SEA Environmental Report update December 2023.

1.4.5 SEA assessments have been undertaken for 40 supply options and 15 demand option scenarios for this Environmental Report. Ongoing stakeholder engagement by SWW has continued to identify new options and discount non-feasible options. Assessments of options that were later discounted as unfeasible or included within AMP7 have not been included in this Environmental Report.

1.4.6 During the updated dWRMP24 development a further 35 supply and drought options have been identified, of which 29 require SEAs and other environmental technical assessments. However, due to the late identification of these options, they had not progressed far enough in the process to enable SWW to provide MM sufficient engineering scopes on these options and as such have not been included within the respective technical assessments or cumulative assessments. A HLS has been undertaken against the SEA constraints to provide an initial overview of these options and identify potential adverse risks.

1.4.7 During summer 2023, it was understood that Isles of Scilly options would be removed from the WRMP24 for inclusion under AMP7. However, as part of the updated dWRMP24 development these options have been retained as WRMP24 feasible options. Therefore, due to the timescales of this change and availability of information the Habitat Regulations Assessments (HRAs) and subsequent updates to the SEAs have not been undertaken to reflect consultation comments. The HRAs will be updated autumn 2023 to address outstanding consultation comments and SEAs will be amended respectively for the December 2023 publication.

1.4.8 HRA ToLS, WFD Level 1 assessments, INNS screenings, BNG and NCA assessments have been completed (or scoped out as required) for the 40 supply options feeding into the updated dWRMP24, with the exclusion of HRAs for the five Isles of Scilly options.

1.4.9 Informal HRA AA, WFD Level 2 assessments and INNS risk assessments have also been undertaken where required, and findings included within this Environmental Report and technical appendices.

1.4.10 Supply-side and demand options have undergone continuous development through the production of the updated dWRMP24. The options outlined within this Environmental Report have been assessed as per the information available at the time of writing. It is recognised that options may be further developed, and additional demand, drought and supply-side options may be identified and brought forward for assessment and future inclusion within the Environmental Report.

1.4.11 A HRA has been undertaken to give indicative assessments based on the currently available information. Assessments have been based on a worst-case scenario on a precautionary basis, due to limited project information and ecological surveys. This is a known limitation of undertaking HRA early in the option development process at a strategic stage, however still a crucial step to understand potential constraints and opportunities to improve options. It is understood that the HRA will be updated in future as option progress beyond the SEA, based on further studies and site ecology surveys over a period of months or years e.g. to confirm how far downstream an increase in abstraction would have effects. It is anticipated that at this stage further assessment to refine the extent of impacts is likely to be sufficient to confirm no adverse significant effects, rather than option changes.

1.5 Next Steps

1.5.1 This updated draft Environmental Report has been re-issued for formal public consultation and will be updated as necessary in line with consultee responses. The new options will undergo full environmental assessments and the existing SEA assessments will also be updated if any WRMP24 options are changed or refined to ensure that the final WRMP24 is fully reflected in the final Environmental Report.

1.5.2 All outstanding SEAs technical environmental assessments (HRA, WFD, INNS, BNG and NCA) and cumulative effects assessment of the alternative plans and review of the preferred plan will be undertaken and provided to support SWWs SoR, December 2023.

1.5.3 Once the final WRMP24 is adopted, a SEA Post-Adoption Statement will be issued to outline how environmental considerations have influenced the plan, how consultee comments have been taken into account, and outline the process of ongoing monitoring measures.

1.5.4 Monitoring will be carried out by SWW following adoption of the WRMP24.

2 Description and Context of the WRMP24

2.1 Background and Purpose

2.1.1 SWW has a statutory obligation to produce a WRMP every five years, which sets out how they intend to maintain the balance between supply, drought and demand for water over a minimum 25-year period. SWW is due to publish its next WRMP in 2024. The new WRMP24 is the subject of this SEA.

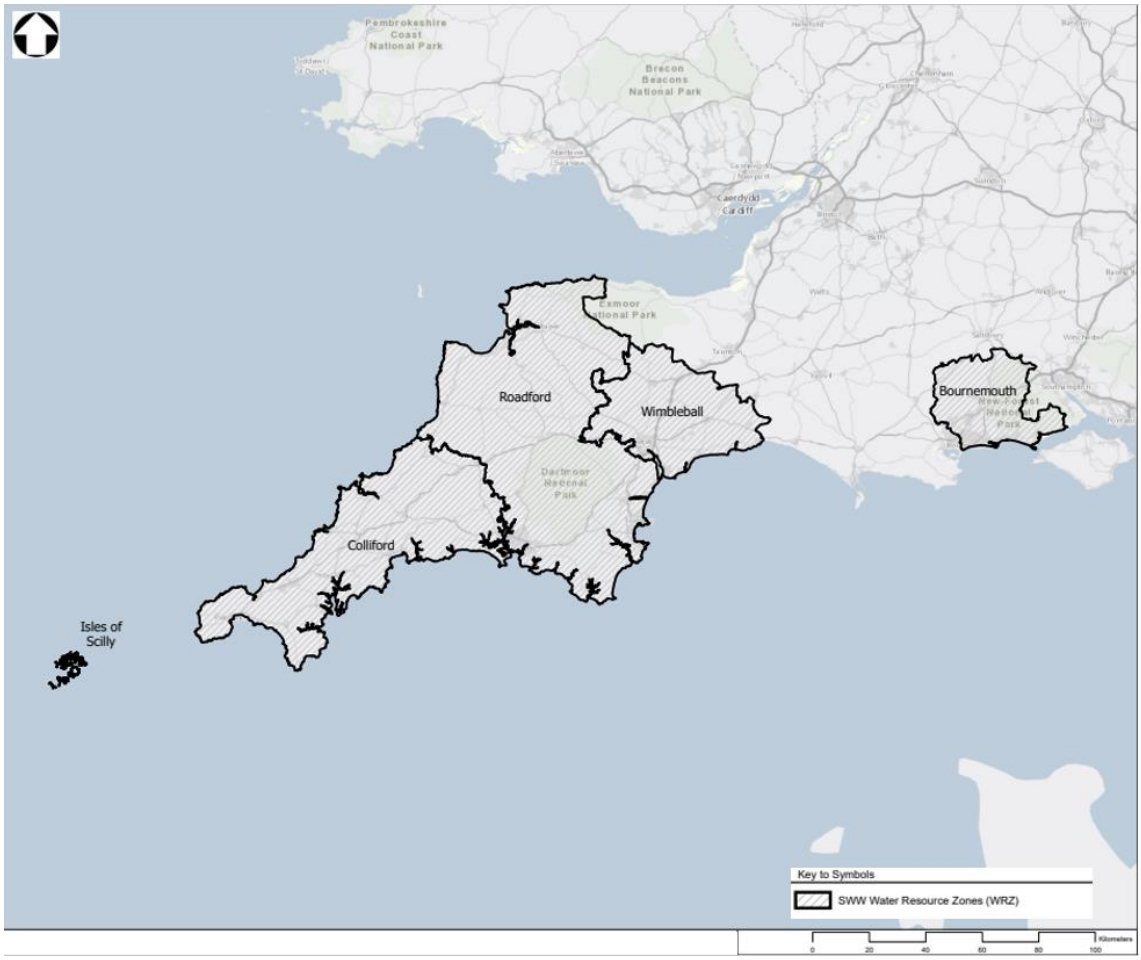
2.1.2 The SWW supply area covers Devon, Cornwall, the Isles of Scilly and parts of Dorset, Somerset, Wiltshire and Hampshire, and provides drinking water to a population of 1.7 million. Water resources in the SWW supply area consist of three large reservoirs, a number of smaller reservoirs, river intakes, and some groundwater sources which are predominantly in East Devon.

2.1.3 The SWW supply area is split into five Water Resource Zones (WRZs) in total. A WRZ is defined as 'an area within which the sources of water and distribution of water to meet demand, is largely self-contained (apart from any agreed bulk transfers)'32. Three WRZs are operated in conjunction with one another to maximise water availability, these are Colliford, Roadford, and Wimbleball WRZs. Bournemouth WRZ and Isles of Scilly WRZ operate independently. The Isles of Scilly became part of SWW's supply area in April 2020, and are geographically remote with no connection to the mainland water supply systems. During Summer 2023, it was noted that Isles of Scilly options were to be removed from the WRMP for inclusion within AMP7. Following further development of the updated dWRMP24 it is understood that these options have been retained as feasible within the WRMP.

2.1.4 The five WRZs are outlined in **Figure 2.1** below.

[32] EA, NRW and Ofwat (2022) *Water Resources Planning Guideline*. Available at: https://www.gov.uk/government/publications/water-resources-planning-guideline/water-resources-planning-guideline

Figure 2.1: SWW WRZs



Source: © Copyright Esri, Intermap, NASA, NGA, USGS (2022), Mott MacDonald (2022).

2.1.5 The study area for the SEA also includes a buffer around the plan area to capture additional receptors that may be affected by the WRMP24 options, as there are potential for effects outside the SWW region or from options close to the SWW plan boundaries.

2.2 Development of the WRMP24

Supply, Demand and Drought Options

2.2.1 SWW has developed a range of options to address the potential future water supply deficit. These have been developed by SWW, with consideration of a number of factors including engineering viability, costs and environmental impacts among others. The updated dWRMP24 includes supply, demand and drought options. The broad supply option types that are being considered by SWW include:

- Abstraction from rivers – including increases in existing abstraction licences; abstraction of compensation flows; or reuse of previously discussed water intake points;
- Reservoirs – reservoir options include the creation of new reservoirs, increases in abstraction limits for existing reservoirs, or the enhancement of existing reservoirs to increase their capacity e.g. by dam raising;
- Groundwater sources – including new boreholes or recharge of aquifers; and

- Water treatment works (WTW) – including construction of new or replacement WTW, or improvements to the efficiency or increased capacity of existing WTW.

2.2.2 The options to reduce demand include measures such as leakage reduction, network metering and customer water efficiency measures.

2.2.3 Drought options include schemes such as temporary licence changes, reinstatement of existing water sources, conjunctive uses and new reservoirs.

2.2.4 During the updated dWRMP24 development, work remained ongoing to refine the supply and demand options. Some options were removed when confirmed as unfeasible or were identified for implementation during AMP7. The full list of 40 supply and 15 demand options included in the updated dWRMP24 which have undergone a full SEA assessment are presented in **Table 2.1** and **Table 2.2**. A list of removed options with the rationale for removal is included in **Section 10.6.9**.

2.2.5 During development of the updated dWRMP24, a further 35 options were identified (15 supply and 20 drought). These are listed within **Table 2.3**Table 2.1Table 2.2. Of the 20 drought options, six have been assessed as part of the SWW Final Drought Plan September 2022, via Environmental Assessment Reports (EARs) and so will not undergo the environmental assessment methodology set out in this report.

Strategic Resource Options

2.2.6 There are currently six confirmed SROs within the updated dWRMP24, which are significant strategic options spanning across water companies. These SROs are as follows:

- BNW7 Mendip Quarries SRO – Reservoir and water transfer; and
- BNW8 West Country South Poole Effluent Recycling & Transfer (PERT) SRO – Poole Harbour effluent reuse.
- BNW17 Cheddar 2 to Summerslade
- WIM13 Cheddar 2 to Parsonage
- WIM18 Cheddar 2 to Bickham Moor
- ROA19 – Cheddar 2 to Prewley

2.2.7 SROs undergo a separate assessment process to the WRMP24 supply and demand options noted above. The results of the environmental assessments undertaken for the SROs for the RAPID Gate 1 submission have been used to inform the development of the SWW WRMP24, in addition to any early Gate 2 studies.

Environmental Assessment Reports

2.2.8 SWW has also commissioned a series of EARs for six of the Drought Options, which provide a desktop assessment of the potential environmental impacts that may occur as a result of the options. These are outlined in Section 9.10 of this report. The options with EARs are as follows:

- dCS6/E: Hawk's Tor Drought Permit Application 2022
- dCS3/E: Blackpool Pit Abstraction Licence
- dCS2/E: Parklake Drought Permit Application 2022
- dC3: Porth Reservoir and Rialton Intake
- dC2: Stannon Lake Abstraction Licence
- dC1: Restormel Abstraction Licence Change

Preferred Plan

2.2.9 SWW used a variety of factors including engineering, financial, environmental, customer/social issues to identify a preferred plan for the updated dWRMP24. This comprises a selection of

supply, drought and demand options drawn from the Bournemouth, Colliford, Roadford and Wimbleball WRZs. A programme level assessment has been undertaken to assess the intra and inter effects of the BVP. At this stage no programme level appraisals have been undertaken on alternative plans due to delays in the modelling process and limited information being provided. Further assessments / appraisals will be undertaken on two alternative plans within the next iteration of the updated dWRMP24 as part of the SoR December 2023.

Catchment Management

2.2.10 There are currently no catchment management options within the updated dWRMP24, however this area is being reviewed by SWW. Should any catchment management options be identified, these will be assessed as part of the SEA process and included in the next version of this Environmental Report. SWW currently addresses catchment management through their 'Upstream Thinking Catchment Management Initiative'. This is a catchment management programme where SWW work with local stakeholders to deliver environmental improvements and improved water quality across catchments. This includes restoring peatlands, advice and grants for farmers, help with obtaining enhanced environmental stewardship schemes, soil tests along with payments for ecosystem services.

2.2.11 SWW have also established a Catchment Based Approach (CaBA) which is an initiative that works in partnership with Governments, Local Authorities, Water Companies, businesses and more, to engage people and groups across society to help improve the water environment.

2.2.12 SWW recognises the importance of nature-based solutions (NBS) in delivering significant benefits for the environment and balancing the water resources supply. SWW have committed to co-design and co-deliver a series of catchment and NBS actions in partnership with several of their key stakeholders. This will be achieved by incorporating water resource interventions into the current and future Upstream Thinking Programme.

2.2.13 SWW are also planning a series of action-orientated investigations and demonstrator projects designed to build their capacity and capability to target, design, deliver and evaluate catchment and NBS that achieve water resources outcomes.

Table 2.1: Updated dWRMP24 Supply Options

WRZ	Option Ref	Scheme Type	Option Name	Description	Yield (Ml/d)
Bournemouth	BNW1	Redevelopment of existing sources with increased yields	Borehole development, existing borehole remedial works.	Borehole development, existing borehole remedial works.	1
Bournemouth	BNW3	Groundwater Sources	Wimborne transfer to Longham – license change	Transfer of the groundwater abstraction licence from Wimborne to Longham on the River Stour.	4
Bournemouth	BNW6	Aquifer Recharge	Longham Aquifer Recharge	Aquifer storage and recovery (ASR) at Longham. Pumping and storage of water in winter months for subsequent abstraction.	10
Bournemouth	BNW14	New raw water supply and new onsite treatment	Ibsley Lake	Deliver abstracted water from Ibsley Lake to Knapp Mill for treatment. The aim is to improve the resilience of the local network in the Dorset region during summer months and to reduce demand on other water sources.	10
Colliford	COL2	Direct River Abstraction	Colliford PS Stage 2 – River Camel Abstraction	New abstraction licence. New river intake and pumping station at Nanstallon, for 90Ml/d at 120m head. 15km of 900m diameter pipeline from the intake to Restormel WTW. Upgrade to existing Restormel WTW intake to pump 110Ml/d (an increase of 15Ml/d). Raw water is then pumped to Colliford Reservoir via existing main.	15
Colliford	COL3	Direct River Abstraction	Abstraction of Colliford compensation flows when making supply releases	Abstraction of Colliford compensation flow when making supply releases. No infrastructure changes required.	2.3
Colliford	COL4	Direct River Abstraction	Abstraction of Siblyblack compensation flows when making supply releases	Abstraction of Siblyback compensation flow when making supply releases. No infrastructure changes required.	1.5
Colliford	COL5	Direct River Abstraction	Increase Wendron annual licence and de-couple from Stithians	No infrastructure changes required.	1 - 2
Colliford	COL6	Direct River Abstraction	River Hayle abstraction	Abstraction from River Hayle at existing disused intake, treat abstracted water at new onsite treatment works.	1 - 2
Colliford	COL9	New reservoir or development of existing source or mineral extraction workings	Lewsidden Pool	Transfer of former quarry water to Drift Reservoir via Sancreed stream. Distance from Leswidden Pool to Sancreed Stream (5km estimate).	5.46

WRZ	Option Ref	Scheme Type	Option Name	Description	Yield (Ml/d)
Colliford	COL15	Increase WTW capacity to licence maximum	Restermol WTW	Increasing Restormel WTW up to its maximum licensed abstraction and enable more effective use to be made of Colliford/ River Fowey resources system.	5
Colliford	COL19	Reintroduce more regular use of existing sources	Boswyn Stream/ Cargenwen Reservoir/ Carwynnen Stream	Re-introduce abstractions of abstraction points at each of these sites.	3
Colliford	COL20	Direct River Abstraction	River Fal new abstraction	New abstraction on the River Fal near Lanihome. New intake, onsite WTW and connection to distribution system.	25
Colliford	COL21	New raw water supply	Alternative raw water supply from Cornish Metals at Crofty	Wheal Jane – The proposed scheme will involve the treatment of effluent from the HDS plant to reach a quality suitable to then be discharged into the Stithians reservoir. South Crofty – The proposed scheme will treat further effluent from the HDS plant to reach a quality suitable to then be discharged into the Stithians reservoir.	20.7
Colliford	COL29	Water Treatment Works Capacity Increase	Restormel WTW capacity increase	Increasing existing abstraction at Restormel WTW from 93Ml/d to 120Ml/d. Upgrades to intake structure, screening, pumps and pipework.	120
Roadford	ROA2	Direct River Abstraction	River Erme	Intake relocation, update to the River Erme abstraction licence and new pumping station. Two possible locations have been proposed, option ROA2a is situated within arable farmland where option ROA2b is proposed within the existing Ivybridge STW.	1
Roadford	ROA3	Direct River Abstraction	River Yealm	Intake relocation and new pumping station. Additional pipeline may be required to connect new intake point with existing South Devon Spine Main pipe network.	3
Roadford	ROA4	Direct River Abstraction	Abstraction of Roadford compensation flow at Gunnislake when making supply releases	No infrastructure changes required.	3.7
Roadford	ROA6	New reservoir or development of existing source or mineral extraction workings	Upper Tamar Lake increasing annual license	Increasing daily abstraction limit, upgrades to WTW and distribution network.	1
Roadford	ROA7	Increase WTW to licence maximum	Expansion of Northcombe WTW to 60Ml/d	Treatment works to be able to deliver a minimum of 60Ml/d. additional 10Ml/d pumping capacity at Roadford reservoir.	10
Roadford	ROA12	Reintroduce more regular use of existing sources	Slade and Horedown WTW (GAC)	Installation of new pumping station at Slade reservoir and new 4Ml/d GAC plant at Horedown WTW.	2

WRZ	Option Ref	Scheme Type	Option Name	Description	Yield (Ml/d)
Roadford	ROA13	Reintroduce more regular use of existing sources, water quality management at WTW	Duckaller and Vennbridge	Changes to abstraction licences and 4Ml/d nitrate removal plant installation at Duckaller pumping station to facilitate full use of sources.	0.4
Roadford	ROA14	New reservoir or development of existing source or mineral extraction workings	Raise Avon Dam	Raise Avon Dam by 2m and increase in reservoir size by 50m from current reservoir edge. Subject to structural engineering approval.	2.5
Roadford	ROA15	New reservoir or development of existing source or mineral extraction workings	Gatherley Phase 2	Pipeline from abstraction point in River Lyd to Roadford Lake Reservoir. Completion of scheme to allow 125Ml/d to be transferred to Roadford Reservoir. Dual main required between River Lyd and Roadford Reservoir.	125
Roadford	ROA17	Water Treatment Works Output Increase	Littlehempston WTW –– Increase water offsite to licence maximum, offsite high lift pumping and main capacity	The option involves the dualling of trunk main pipelines from Littlehempston WTW to Gallows Gate (9.22km and 600mm dia) in the west and Crabadon Cross via Langridge Cross (9.87km and 400mm dia) in the east (total of 19.09km). This would include crossing the River Dart and two rail lines.	5
Wimbleball	WIM1	Direct River Abstraction	Abstraction of Wimbleball compensation flow at Northbridge when making supply releases	No infrastructure changes required. Abstracted water will have come from Wimbleball Reservoir. Downstream of abstraction point, the River Erme will have a reduced flow, it is assumed that there will be a small increase in energy due to increased water treatment and pumping.	9
Wimbleball	WIM2	Groundwater Sources	Sidford borehole commissioning	Equip and make operational existing borehole; pump, headworks, control and monitoring system, connecting pipework. New groundwater source treatment system including chlorination and iron and manganese removal plant, within existing site footprint.	1.5
Wimbleball	WIM4	Groundwater Sources	Wilmington springs annual abstraction increase	No infrastructure changes required. A reduction in flow downstream in the Umborne Brook and a very small increase in energy required for the increased water treatment / distribution. The current intake is restricted by the current licence. The licence will be varied to allow a greater volume of water to be taken over the year.	0.4
Wimbleball	WIM5	Reclaimed water, water reuse, effluent reuse	Indirect potable reuse – stream support for Dotton WTW	Pumped treated effluent from Sidmouth WWTW directly to the River Otter using a new pipeline (5km) and outfall to augment	2

WRZ	Option Ref	Scheme Type	Option Name	Description	Yield (Ml/d)
				the river during low flow periods. High pumping requirements due to a height variance in the pipeline route.	
Wimbleball	WIM6	Increase WTW capacity to licence maximum	Increase Allers WTW capacity	Increase daily abstraction licence to 36Ml/d. upgrade Bolham abstraction to pump additional 4Ml/d. upgrade WTW to treat an additional 4Ml/d, with distribution network improvements.	4
Wimbleball	WIM7	Increase WTW capacity to licence maximum	Increase Pynes to licence limit 66.46Ml/d	Upgrade WTW to treat an additional 6.5Ml/d. The final works could include new river intake streams, raw water main pipeline replacements, installation of additional of water treatment equipment, and pump replacements. There will be no distribution network changes. During operation, there will be an increased energy consumption to accommodate for the additional water treatment and distribution. The WTW extracts untreated water from the River Exe. The natural river flows can be supplemented with releases from Wimbleball reservoir in the River Haddeo, a tributary of the River Exe.	6.5
Wimbleball	WIM8	Redevelopment of existing sources with increased yields (changes to system operation). Reintroduce more regular use of existing sources	Brampford Speke borehole	Agree licence changes with EA. Site commissioning.	3.5
Wimbleball	WIM9	Redevelopment of existing sources with increased yields (changes to system operation). Reintroduce more regular use of existing sources	Stoke Canon borehole	Agree licence changes with EA. Install new power supply. Site commissioning.	4.5
Wimbleball	WIM11	Transfer of water	Couchill Springs, Seaton	Supplement water supply to Bovey Lane WTW from Couchill Springs via a new 1.49km pipeline. New assets at Bovey Lane would be required including a collection chamber and pumping station, break tank, amazon filters, and UV disinfection.	1
Wimbleball	WIM12	New groundwater	Allers Springs	Abstraction from Allers Springs which is then piped to Allers WTW for treatment. The option would require a concrete well, 2no. 3kW submersible pumps, raw water pipework from well to raw water tank (connection to existing asset), and abstraction licence.	1

WRZ	Option Ref	Scheme Type	Option Name	Description	Yield (Ml/d)
Isles of Scilly	ISMY1	Groundwater sources	St Mary's new borehole (location 1)	Drilling of new supply borehole 30m depth, 150mm diameter borehole / c. 1kW pump. Associated infrastructure (headworks, kiosk and pipework) wastewater piped via raw main (estimated 32mm diameter for 500m distance) to existing WTW. Assumes spare capacity at existing WTW. No additional requirement.	0.1 – 0.15
Isles of Scilly	ISMY2	Groundwater sources	St Mary's new borehole (location 2)	Drilling of new supply borehole at 30m depth with 150mm diameter borehole / c. 1kW pump. Associated infrastructure (headworks, kiosk and pipework) and requiring standalone treatment, with water piped directly into supply network (estimated 32mm diameter for 500m distance).	0.1 – 0.15
Isles of Scilly	ISMY4	Redevelopment of existing sources with increased yields	St Mary's - Increase Existing Desalination Plant Capacity	Additional process stream at existing RO plant. New building required.	0.1 – 0.25
Isles of Scilly	ISB4	Redevelopment of existing sources with increased yields	Bryher – Increase Existing Desalination Plant Capacity	Additional process stream at existing RO plant plus increased borehole yield and/or new borehole source. New building required.	0.1 – 0.2
Isles of Scilly	IST1	Groundwater sources	Tresco new borehole	Drilling of new supply borehole to South or east of island. Assumed 30m depth, 0.75kW pump, 100mm diameter borehole pipework, with associated infrastructure (headworks, kiosk and pipework) and on-site treatment (assume UV disinfection) wastewater piped via new raw main (estimated 40mm diameter for 500m distance) to existing WTW. Cost for new WTW and UV.	0.03

Table 2.2: Updated dWRMP24 Demand Options

WRZ	Option Ref	Option Type	Options	Description	Yield (Ml/d)
SWW	HH: Metering	Metering other selective, metering compulsory, metering optants, metering change of occupancy	HH_M_002 HH_M_003a_v1 HH_M_003b HH_M_004 HH_M_006a HH_M_006b HH_M_006c	Includes all interventions involving household metering. This includes compulsory metering, metering optants, metering change of occupancy and other selective metering options.	Undetermined

WRZ	Option Ref	Option Type	Options	Description	Yield (Ml/d)
			HH_M_007a HH_M_007b HH_M_008		
SWW	HH: Water efficiency customer education/awareness	Household water efficiency customer education/awareness	HH_E_013 HH_E_017	Education and awareness raising programmes to improve customer water efficiency practices.	Undetermined
SWW	HH: Water Audit	Household water audit	HH_A_002 HH_A_003 HH_A_004 HH_A_005 HH_A_006 HH_E_009 HH_E_010 [33]	Household water audits including both in-person and virtual home efficiency visits.	Undetermined
SWW	HH: Retrofitting indoor water efficiency devices	Retrofitting indoor water efficiency devices	HH_E_001 HH_E_004	Involves retrofitting old water devices to more efficient ones.	Undetermined
SWW	HH: Other water efficiency (incentives)	Other water efficiency (incentives)	HH_I_001 HH_I_002	Targeted financial and non-financial incentives for new metered customers and developers to increase awareness and motivation to reduce water use, and ensure all new homes are designed to enhance water efficiency standards.	Undetermined
SWW	HH/NHH: Tariff	Tariff	HH_T_001	Use of tariffs to motivate water efficiency and customer behaviours. The rate of water increases as the volumes of consumption increases.	Undetermined
SWW	HH: Rainwater harvesting	Rainwater Harvesting	HH_N_001 HH_N_003	Work with developers to provide a community-wide rainwater harvesting system to provide a non-potable supply for toilets and washing machines for new properties.	Undetermined

[33] Since this option was assessed, it has now been moved to the 'unconstrained' list as it has not been deemed fully feasible. Therefore this option may be removed in future if it is considered unfeasible after further study.

WRZ	Option Ref	Option Type	Options	Description	Yield (Ml/d)
				Water is collected from roof runoff and a sustainable drainage system is created.	
SWW	Distribution Options: Distribution mains and trunk mains replacement, pressure management, active leakage control and other leakage control measures	Active leakage management, mains replacement, other leakage control, pressure management, trunk mains renewal (new)	LKG_01_ALC LKG_02_IALC LKG_03_ARMC LKG_04_ARMO LKG_05_ARCO LKG_06_ALCRI LKG_07_ARI LKG_08_PAL LKG_09_DMAMLT LKG_10_CSPLR LKG_11_DMASD LKG_12_APM LKG_13_PRT LKG_14_TMARMC LKG_14_TMARM LKG_14_TMARC LKG_15_TMAALC LKG_16_TMFMZ LKG_17_TMLG	Options involve reducing leakage to achieve water efficiency.	Undetermined
SWW	Drought – water use restrictions.	Customer options	DRT_Dem_Lev1 DRT_Dem_Lev2 DRT_Dem_Lev3	• Enhanced media campaigns • Temporary use ban • Non-essential use ban • Rota cuts/standpipes	Undetermined
SWW	HH: Other water efficiency (policy)	Other water efficiency (policy)	HH_P_002	In this intervention water labelling of relevant products is legislated as mandatory and managed by government. The scheme would be operated in association with Building Regulations and minimum standards (i.e. based on changes to The Water Supply (Water Fittings) Regulations 1999). This would mean that only products performing at a baseline level will be allowed on the market and referenced in the Building Regulations. This would require not only the	Undetermined

WRZ	Option Ref	Option Type	Options	Description	Yield (Ml/d)
				development of the labelling policy but also the development and agreement on the baseline standard and the amendment of the relevant Building Regulations. This has now been mandated by Defra[34], and will be implemented by Government by early 2025.	
SWW	NHH: Water audit, retrofitting indoor water efficiency devices, water efficiency customer education / awareness.	NHH water audit, retrofitting indoor water efficiency devices, water efficiency customer education/awareness	NHH_A_001a NHH_A_001b NHH_A_001c NHH_A_001d NHH_A_001e NHH_A_001f NHH_A_001g NHH_A_001h NHH_A_001i NHH_A_001j. NHH_A_001k NHH_A_001li NHH_A_001m NHH_A_002 NHH_A_003a NHH_A_003b NHH_A_003c / NHH_A_004 NHH_A_003d NHH_A_005 NHH_A_006 (NHH_A_001_golf) NHH_A_007 NHH_E_005	Business efficiency visit (BEV) targeted at specific sectors. Water efficiency devices will be retrofitted and advice given on water efficiency. Simple wastage fixes will take place where feasible.	Undetermined
SWW	NHH: Metering other selective	Metering other selective (Non-Household customers)	NHH_M_002a NHH_M_002b NHH_M_003	This option includes interventions involving meter upgrades, increasing meter reading frequency and issuing water saving devices.	Undetermined

[34] DEFRA (2022) *Consultation on Mandatory Water Efficiency Labelling*. Available at: Consultation on mandatory water efficiency labelling (defra.gov.uk)

WRZ	Option Ref	Option Type	Options	Description	Yield (Ml/d)
SWW	NHH: Water efficiency customer education / awareness	Water efficiency customer education / awareness (advice and guidance)	NHH_E_001 NHH_E_003 NHH_E_002a NHH_E_002b		
SWW	NHH: Other water efficiency (rainwater harvesting)	Other water efficiency (rainwater harvesting).	NHH_N_008	Work with the respective businesses, to use less potable water, by helping them develop their own sources of non-potable water.	Undetermined
SWW	NHH: Water reuse	Water reuse (third party)	NHH_N_005	Involves reusing treated wastewater effluent from industrial users as an alternative supply. The reclaimed water could be used for industrial/commercial use rather than potable water.	Undetermined

Table 2.3: Updated dWRMP24 New Supply and Drought Options

WRZ	Option Ref	Supply/ Drought	Scheme Type	Option Name	Description	Yield (Ml/d)
Bournemouth	DB1	Drought	Licence change	Wimborne Borehole	Connection of disused source to existing WTW using a new pipeline. 2ML/d benefit for 1-3 months.	2
Bournemouth	DB2	Drought	Licence change	Stanbridge Licence	Increase abstraction from existing sources using existing assets. 12.5ML/d benefit for 2-6 weeks.	12.5
Colliford	DC1	Drought	Licence change	Restormel Licence	Increase abstraction for 3 months to 20-40ML/d. 5-10ML/d benefit annualised.	110
Colliford	DC2	Drought	Licence change	Stannon Lake Licence	Temporary installation in place. Permanent solution data is provided. 4ML/d for 2-4 months benefit from DP.	8
Colliford	DC3	Drought	Transfer of water	Porth Reservoir and Rialton Intake	Re-commencing abstraction from licence resource. Temporary WTW eel screen, laying of pipelines and installation of pumps required.	4

WRZ	Option Ref	Supply/ Drought	Scheme Type	Option Name	Description	Yield (Ml/d)
Colliford	DCS1/E	Drought	Conjunctive use	Colliford not releasing compensation flows when making supply releases.	Licence variation – no infrastructure/build associated.	2.3
Colliford	DCS11/E	Drought	Conjunctive use	Siblyback not releasing compensation flows when making supply releases	Licence variation - no infrastructure/build associated.	1.5
Colliford	DCS2/E	Drought	Licence change	Parklake Licence	Increase abstraction at existing source using new pumps. 4ML/d benefit for 6 months.	4 for 6 months
Colliford	DCS3/E	Drought	New surface water	Blackpool Pit	Abstraction from new source using new abstraction infrastructure and pipeline to existing WTW. 10ML/d for 3 months benefit.	12
Colliford	DCS6/E	Drought	New surface water	Hawks Tor Pit	Temporary installation in place.6ML/d for 6 months benefit from DP.	3.7
Roadford	DR2	Drought	New reservoir	Slade Reservoir	Abstraction of Slade Reservoir through existing pipeline to WTW by re-introducing a disused licence.	1
Roadford	DR3	Drought	New reservoir	Challacombe Reservoir	Reinstated water source connecting to existing WTW through existing pipework. 1-2ML/d benefit for 2 months.	1-2
Roadford	DR4	Drought	Surface water enhancement	Meldon/Vellake to Roadford	Using existing intakes and connect them to existing WTW with new pipeline. 3-5ML/d benefot for 6 months.	3-5
Roadford	DR5	Drought	New groundwater	Lee Moor unused quarries	New intakes connected to a new WTW via a new pipeline and a new pipeline to existing distribution network. 2-4ML/d for 3-6 months	2-4
Roadford	DRS15/E	Drought	Conjunctive use	Roadford not releasing compensation flows when making supply releases	Licence variation – no infrastructure/build associated.	3.7
Roadford	DRS18/E	Drought	Conjunctive use	Lyd April to May	Abstract from the River Lyd and transfer into Roadford Reservoir in November and December. Extend the Level 1 Drought Permit (January to March) abstraction period.	40 for 2 months
Wimbleball	DW1	Drought	Groundwater abstraction	Brampford Speke and Stoke Canon (North Exeter Boreholes)	Combined WIM8 and WIM9. Civil CAPEX is 25% and MEICA is 50% of original estimate due to	4

WRZ	Option Ref	Supply/ Drought	Scheme Type	Option Name	Description	Yield (Ml/d)
					temporary solution (i.e. hire equipment, overground pipes etc). L&C CAPEX is assumed to increase by 50% due to time requirements. All CAPEX have OB applied. Assume that OPEX & Op Carbon will increase by 50%. Embodied carbon by Civil/M&E/ICA has been assumed by applying a percentage of total CAPEX. Same rules as CAPEX for embodied carbon reduction. L&C CAPEX was removed from embodied carbon. 8MLD for 4 months benefit assumed from DP. 4MLD WAFU from WRMP scopes used to align WRMP costs with benefit.	
Wimbleball	DW2	Drought	Conjunctive use	Hook Springs Licence	Increase abstraction using existing assets. 0.4ML/d benefit.	0.4
Wimbleball	DW3	Drought	Conjunctive use	Wilmington Springs Licence	Wilmington Springs annual abstraction licence.	0.4
Wimbleball	DW4	Drought	Conjunctive use	Wimbleball not releasing compensation flows when making supply releases.	No infrastructure required. No compensation flow.	1
Bournemouth	BNW16	Supply	Water reuse	Christchurch and Holdenhurst WWTW IPR 3 - further treatment and transfer to Knapp Mill WTW	TBC	40
Bournemouth	BNW18	Supply	WTW upgrades	Alderney WTW - Reduce Treatment Losses	TBC	1.5-2
Bournemouth	BNW19	Supply	WTW upgrades	Knapp Mill WTW - Reduce Treatment Losses	TBC	1.5-2
Colliford	COL16	Supply	WTW upgrades	College WTW Improvements - treatment and distribution system	TBC	2.5
Colliford	COL22	Supply	Distribution capacity expansion	Roadford to Colliford via Saltash	Pump installation/upgrade at Winston Beacon to supply area in St Cleer. Installation and upgrade of pumping station at Winston Beacon. Use of the existing network to supply St Cleer WTW and Bastreet WTW via Winstone Beacon SR and Kit Hill SR.	2

WRZ	Option Ref	Supply/ Drought	Scheme Type	Option Name	Description	Yield (Ml/d)
Colliford	COL23	Supply	Distribution capacity expansion	Mayflower WTW to Kit Hill (St. Cleer)	TBC	10
Colliford	COL24	Supply	Distribution capacity expansion	Northcombe WTW to Launceston	New 21km pipeline from Northcombe to Launceston to transfer up to 5 Ml/d of treated water to support the Colliford WRZ.	5
Colliford	COL25	Supply	Distribution capacity expansion	Brent Tor to Launceston	TBC	10
Colliford	COL26	Supply	Distribution capacity expansion	Restormel WTW to East Cornwall	TBC	40
Colliford	COL28	Supply	Desalination	Desalination Plant at Par	New desalination plant.	10
Roadford	ROA20	Supply	Distribution capacity expansion	Mayflower WTW to South Devon treated (also known as: Mayflower WTW to Littlehempston, Mayflower WTW/Rodborough to Gallows Gate NRP)	Transfer of up to 40Ml/d of treated water from Mayflower WTW to Littlehempston WTW, through approximately 37.3km of existing pipeline. New pumping station on existing Littlehempston WTW site.	40
Roadford	ROA21	Supply	Distribution capacity expansion	Rodborough to South Devon (Littlehempston WTW) RAW (also known as Rodborough Tank at Mayflower WTW to Littlehempston WTW)	Transfer of up to 40Ml/d of raw water from Mayflower WTW to Littlehempston WTW, through approximately 37.3km of existing pipeline. New pumping station on existing Littlehempston WTW site.	40
Wimbleball	WIM14	Supply	Distribution capacity expansion	Whitecross distribution upgrade	TBC	5
Wimbleball	WIM15	Supply	Distribution capacity expansion	Northcombe to Allers	New 74km pipeline connecting Northcombe WTW to Allers WTW	20
Wimbleball	WIM16	Supply	Water recycling	FE reuse Exmouth Maer Lane WWTW	Works are planned for the transmission system from Countess Weir STW and Maer Lane STW, with the proposed Water Recycling Centre (WRC) Plant near the River Exe to provide resilience to Pynes WTW.	10

3 Scoping Summary

3.1 Introduction

3.1.1 The Scoping Stage of the SEA process sets the context and scope of the SEA and Environmental Report. Specifically, the scoping stage aimed to:

- Review relevant international, national and local policies, plans and programmes and their implications for the WRMP;
- Establish the baseline environmental and socio-economic information and key sustainability issues and opportunities for the SWW WRMP24 area;
- Set the context and objectives of the SEA;
- Decide on the scope for the SEA, ensuring that it covers all the likely significant environment effects of the WRMP; and
- Provide an opportunity to engage and collaborate with the Consultation Bodies[35].

3.1.2 **Chapters 4 and 5** of this Environmental Report provide a summary of the scoping information as presented in the SEA Scoping Report (Mott MacDonald, May 2022) and includes updates following the scoping consultation where relevant. These chapters cover a summary of the tasks under SEA Stage A including the following with full details presented in **Annex 1: Appendix B, C and E.**

- Scoping Consultation;
- Policies, Plans and Programmes Review;
- Baseline Information including Future Trends;
- Key Sustainability Issues and Opportunities; and
- SEA Framework.

3.2 Scoping Consultation

3.2.1 The scoping report was issued for formal consultation for five weeks between 6th May and 9th June 2022. During the consultation period, statutory Consultation Bodies and other key stakeholders (including the public) had the opportunity to comment on the proposed scope and approach for the SEA. The comments received from the formal consultation process and the resulting updates made to the Environmental Report are detailed in **Annex 1: Appendix F.**

3.3 SEA Screening

3.3.1 Water companies, as responsible authorities, must determine if their WRMP falls within the scope of the SEA Directive. SWW's WRMP24 has been screened to determine whether a SEA of the WRMP is required. The decision tree in **Section 3.2.1** of the UK Water Industry Research (UKWIR) guidance 'Environmental Assessment Guidance for Water Resources Management Plans and Drought Plans'[36] was used.

3.3.2 The results of the screening exercise were as follows:

- The WRMP has been prepared and adopted by SWW who, under the SEA Directive, is considered an "authority";

[35] The Consultation Bodies are: Natural England, Historic England, and the Environment Agency.

[36] UKWIR (2021) *Environmental Assessment Guidance for Water Resources Management Plans and Drought Plans*.

- The WRMP is required by legislative provision, being a statutory document under the Water Act 2003, amending the Water Industry Act 1991;
- The WRMP has been prepared for water management and also sets a framework for future development consent as it contains options for new infrastructure for the sourcing, treatment, storage and/or transfer of water;
- The area of jurisdiction for the WRMP would be considered greater than 'local level' and the options to be included within the plan are not within the meaning of 'small areas'. As WRMPs are required as new plans on a cyclical basis to provide for updated supply-demand forecasts over a long-term planning horizon, they are not considered to be 'minor modifications' to the previous plan;
- A WRMP meets none of the exemption criteria e.g. required for national defence or civil emergency; and
- In light of the above SEA screening results, a SEA of the WRMP24 is required.

4 Relationships with other Policies, Plans and Programmes

The SEA Regulations requires:

'an outline of the contents and main objectives of the plan or programme, and of its relationship with other relevant plans and programmes'

'the environmental protection objectives, established at international, Community or Member State 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'

SEA Regulations Schedule 2 (1) and (5)

4.1 Water Resource Planning Guidelines

4.1.1 The Water Resource Planning Guidelines ('the Guidelines') were updated by the EA, NRW and Ofwat for the WRMP24 in 2023. The Guidelines set out the framework and requirements for developing a WRMP with the objective 'to efficiently deliver resilient, sustainable water resources for customers and the environment, both now and in the long term'[37].

4.1.2 The Guidelines set out the importance of links with other frameworks, plans and strategies. This includes reflecting the ambitious nature of the governments' 25-year Environmental Plan[38]. The first revision of this is set out in the Environmental Improvement Plan[39]. WRMPs should:

- Set out the destination for environmental sustainability and resilience;
- Support nature recovery;
- Use natural capital in decision making;
- Use a catchment approach; and
- Deliver net gain for the environment.

4.1.3 Further environmental considerations set out in the Guidelines include:

- Impact of climate change with regard to river flows and groundwater recharge, and any future supply options;
- Issue of spread of INNS and proposed measures to mitigate that risk;
- Enhancing the natural resilience of catchments by effective catchment management planning, to increase the amount and/or quality of water available for abstraction without posing unacceptable pressures on the environment; and
- Consider whether abstractions are truly sustainable, looking across a catchment as a whole.

[37] EA, NRW and Ofwat (2023) *Water Resources Planning Guideline*, Section 1.1.1. Available at: https://www.gov.uk/government/publications/water-resources-planning-guideline/water-resources-planning-guideline

[38] HM Government (2018) *A Green Future: Our 25 Year Plan to Improve the Environment.* Available at: 25-year-environment-plan.pdf (publishing.service.gov.uk)

[39] HM Government (2023) *Environmental Improvement Plan*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1168372/environmental-improvement-plan-2023.pdf

4.1.4 The Guidelines and supplementary guidance notes also set out the specific environmental assessment requirements that need to be undertaken when developing the WRMP24. Key updates from WRMP19 include:

- The requirement to demonstrate BNG for options and the plan;
- The stronger focus and detailed guidance on natural capital including the five minimum ecosystem services to be considered and natural capital metrics; and
- Improved guidance on approaches to integrate environmental outputs into options decision-making and programme appraisal.

4.1.5 The supplementary guidance note 'Environment and Society in Decision-Making'[40] provides additional detail on how to integrate environmental and social considerations into decision-making in the WRMP process through SEA, BNG assessment and NCA.

4.1.6 The Guidelines state there is a need to comply with environmental legislation, SEA and HRA. The results of the SEA and other environmental assessments are used to aid decision-making on mitigation requirements, options development, and selection of preferred options for the WRMP24. This supports the wider aim of developing a WRMP that meets legislative environmental requirements and provides environmental net gain.

4.1.7 The UKWIR technical guidance[41] on WRMP assessments includes a quality assurance checklist for the SEA Environmental Report, which provides a summary of the legal requirements for the report. This QA checklist has been used during development of the SWW SEA to confirm the assessment approach and reporting are compliant with legislation. The completed QA checklist is presented in **Annex 1: Appendix G**.

4.2 WRMP Environmental Assessment and the Regional Planning Process

4.2.1 West Country Water Resources (WCWR) is one of the five water resource groups created under the National Framework for Water Resource. SWW, alongside Wessex Water and Bristol Water are the three public water companies which cover the six distinct WRZs. The WCWR Draft Regional Plan[42], which takes a long-term view of water planning up to 2050, has recently been published for consultation in January 2023. The key aim of the Plan is to align the needs of the region between the three public water supply companies and related stakeholders. The WCWR Draft Regional Plan has been reviewed as part of this Environmental Report to ensure the proposed approach to undertaking the SEA aligns with the draft Plan and its aims, such as meeting future resilience to water scarcity and ensuring environmental improvements.

4.2.2 The current iteration of the WCWR Draft Regional Plan predominantly draws on the draft WRMPs which are all subject to SEA and HRA, in line with National Framework requirements. There are currently no SEA methodology or assessments available in the WCWR Draft Regional Plan.

4.2.3 The updated dWRMP24 SEA includes an in-combination effects assessment, which has considered transfers which are outside the SWW area or in close proximity to the plan boundary with potential pathways affecting receptors outside the plan area. Further details on the proposed environmental assessment approach including the SEA methodology is presented in **Section 8** of this Environmental Report.

[40] Environment Agency (2021) *Water resources planning guideline supplementary guidance*. Environment and society in decision-making (England). External guidance: 18643.

[41] UKWIR (2021) *Environmental Assessment Guidance for Water Resources Management Plans and Drought Plans*, Section B.1.8.

[42] WCWRG Initial regional draft plan (2023). Available at https://www.wcwrg.org/siteassets/document-repository/reports/draft-west-country-water-resources-plan-31jan2023.pdf

Strategic Resource Options

4.2.4 Within the WCWR Draft Regional Plan there are three Strategic Resource Options (SROs), which are significant strategic options spanning across water companies. Two SROs are under development in the SWW area outlined in **Section 9.9**. The third SRO, Cheddar Two, although not located within SWW area, also has four options under development which involve the transfer of water south-eastwards towards Wessex Water and onwards into SWW's region.

4.2.5 These SROs are currently progressing within the Regulator's Alliance for Progressing Infrastructure Development (RAPID), a framework that promotes and enables strategic schemes to help support and improve the resilience of water supplies into the future. The West Country South Poole Effluent Recycling & Transfer (BNW8 in SWW's draft WRMP) and Cheddar Two (BNW17, WIM13, WIM18 and ROA19 in SWW's updated dWRMP) were submitted to Gate 2 in November 2022 and the proposed Gate 3 submission is March 2025. Mendip Quarries (BNW7 in SWW's updated dWRMP) was submitted for Gate 2 in July 2023 and the proposed Gate 3 submission year is 2028.

4.3 The WRMP24 Environmental Destination

4.3.1 'Environmental destination' is a new term that was introduced through the Environment Agency's Water Resources National Framework[43] document, published in March 2020. The term refers to the consideration of actions to enhance the environment and build resilience to future challenges, for example, to drought, flooding, raw water quality decline, impact from INNS, land use change, and impacts from run off. This information is important to understand to ensure we meet the objective of leaving the environment in a better place for future generations. This objective is also reflected in the Government's 25 Year Environment Plan[44], which also pledged to improve resilience to drought and minimise interruption to water supplies. The 25-year plan also included a commitment for the UK Government to work with the water industry to set an ambitious personal consumption target.

4.3.2 Understanding how much water can be abstracted from the environment in a sustainable way now and in the future is important when developing a regional resilience multi-sector plan. In the past, the regional plan has taken account of the supply and demand forecasts, but not the longer-term needs of the environment. This regional plan seeks to address this by incorporating an environmental forecast which sets out potential futures, looking at water quality and availability requirements for the environment. The forecast has been based on current adverse environmental impacts, previous investigations, river basin management plans (RBMP), regional policies and a range of flow-based targets where no other evidence exists.[45]

4.3.3 The WRMP24 environmental assessments, including the SEA, support the environmental destination and regional planning by assessing and informing the long-term resilience of the WRMP24 plan and aiming to achieve a plan that provides environmental net gain.

[43] Environment Agency (2020) *Meeting our future water needs: a national framework for water resources*. Available at: https://wre.org.uk/wp-content/uploads/2020/03/National_Framework_for_water_resources_summary.pdf#:~:text=The%20National%20Framework%20explores%20the%20long-term%20needs%20of,industry%3B%20and%20the%20water%20needs%20of%20the%20environment.

[44] HM Government (2018) *A Green Future: Our 25 Year Plan to Improve the Environment*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf

[45] Method Statement: Environmental Ambition (Consultation version, July 2020). Available at: https://www.wrse.org.uk/media/zijbfld1/wrse_file_1333_wrse-ms-environmental-ambition-v2.pdf

Nature Recovery Networks and Local Nature Recovery Strategies

4.3.4 Making Space for Nature, A review of England's Wildlife Sites and Ecological Network[46], set out the essence of what needs to be done to enhance the resilience and coherence of England's ecological networks. The report proposed that this could be summarised in four key words: more, bigger, better and joined. The Environment Act 2021 requires the preparation and publication of Local Nature Recovery Strategies setting out biodiversity priorities including opportunities for recovering or enhancing biodiversity, and production of local habitat maps to support the strategy. The Government's 25-year plan supports this by including provision for a Nature Recovery Network (NRN). The WRPG aligns with these requirements and identifies that WRMPs should support recovery and enhancement of biodiversity according to opportunities and priorities identified in relevant Local Nature Recovery Strategies and contribution to Nature Recovery Networks. Therefore, it is important that the WRMP24 identifies potential opportunities to support both Government priorities and WRMP requirements.

Water Industry National Environment Programme (WINEP)

4.3.5 The Water Industry National Environment Programme (WINEP) is the programme of actions water companies need to take to meet statutory environmental obligations, non-statutory environmental requirements or delivery against a water company's statutory functions. Water companies are expected to take account of the contribution their proposed options make to the WINEP wider environmental outcomes.

4.3.6 SWW's Water Resource Team are delivering WINEP scopes of their AMP7 Investigations. These have contributed towards water resources being utilised in an environmentally sustainable way. Below is a list of the WINEP scopes SWW are currently investigating:

- **Rialton/Porth – WFD No Deterioration Investigation** - SWW will produce a hydro-ecological model which will enable assessment of whether their proposed abstraction and fully licenced abstraction (Rialton Intake license) would cause ecological deterioration. The investigation will identify and appraise options that prevent deterioration. The EA and SWW will use the assessment and options appraisal to agree the preferred mitigation option(s) to prevent deterioration to the WFD waterbody.
- **Otter Catchment Options Appraisal** - This will consider options which reduce the surface water flow deficit of surface waterbodies dependent on the Otter Valley groundwater body. The preferred option(s) will be agreed by EA and SWW. This will be used to inform implementation in AMP8 and WRMP24.
- **Camel Catchment Options Appraisal** - This will determine if abstraction licences are impacting on the ability of waterbodies to achieve their Natura 2000 Conservation Objectives or Favourable Condition for Sites of Special Scientific Interest (SSSIs). This investigation will be used to inform future decisions for implementation options which may include changes to abstractions, or wider mitigation measures.
- **Fisheries Bank Option Appraisal** - This will demonstrate the potential options for achieving Good Ecological Potential and improve compliance with the salmon conservation limit. This option appraisal will appropriately mitigate the impact of the Fernworthy Reservoir on fish passage in the South Teign River.
- **Wistlandpound Reservoir, Venford Reservoir, and Stithians Reservoir and River Kennal Heavily Modified Water Bodies (HMWB) Investigation** - SWW will determine if there is sufficient evidence to confirm that the named assets and abstraction activities are causing negative ecological impacts to downstream waterbodies. Identification and assessment of appropriate management actions to mitigate negative ecological impacts.

[46] HM Government (2010) *'Making space for nature': a review of England's wildlife sites published today*. Available at: 'Making space for nature': a review of England's wildlife sites published today - GOV.UK (www.gov.uk)

- **Natural Environment and Rural Communities (NERC) Investigation** - This investigation on the Beadon Brook will deliver an adaptive management trail to improve the habitat downstream for salmonids. This will include the design of a trial of gravel augmentation and/or other habitat improvements. Effectiveness on fish populations and habitats will be monitored and if they are not sufficient, further investigation will be undertaken to identify any additional/alternative requirements.
- **Burrator HMWB Adaptive Management** - SWW will plan and implement adaptive management trials of gravel augmentation/change in flow regime and/or other habitat improvement. Monitoring to be included particularly between Burrator and Sheepstor for salmonids as a protected species and to measure the effectiveness of the actions undertaken.
- **Brampford Speke and Stoke Canon WFD No Deterioration Measure Specification** - SWW will produce a hydro-ecological model which will enable assessment of whether their proposed abstraction and fully licensed abstraction (Brampford Speke and Stoke Cannon licences) would cause ecological deterioration. The investigation will include an appraisal of the options that could be put in place to prevent deterioration of ecological status. The EA and SWW will use the assessment and options appraisal to agree the preferred mitigation option(s) to prevent deterioration.
- **Wilsworthy Brook Investigation/Options Appraisal** - An investigation and options appraisal to identify a solution for the transfer of the Wilsworthy Brook (not a licensed abstraction). This currently flows into the Mine Leat and deprives Willsworthy Brook which passes through County Wildlife Sites (CWS) before joining the River Tavy. The EA and SWW will agree the measure(s) to be implemented in PR24 and licensing requirements. These will have potential to improve flows on the River Tavy and reduce impacts of depleted reach.

4.4 Policies, Plans and Programmes Review

4.4.1 A review of the policies, plans, and programmes relevant to the SWW SEA as part of the WRMP24 has been undertaken. The aim was to determine how the emerging WRMP24 and supporting SEA may be affected by these external factors, and identify any key environmental messages and objectives. Furthermore, the WRMP24 must aim to support, and where possible strengthen, current relevant policies, plans, programmes and environmental protection legislation at international, national, and local levels, including within the SWW region. The review findings were used to inform the development of the SWW SEA Framework.

4.4.2 **Table 4.1** lists current relevant policies, plans, and programmes which were considered during the SEA scoping stage. **Annex 1: Appendix B** presents the policies, plans, and programmes review in full. These plans, policies and programmes were reviewed regularly as the locations of the options being assessed were confirmed to ensure the plans, policies and programmes at sub-regional/local level remained relevant.

Table 4.1: Relevant international, national, and regional policies, plans and programmes

Policies, Plans and Programmes

International

- Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979)
- Bonn Convention on the Conservation of Migratory Species of Wild Animals (1983)
- Convention on Biological Diversity (1992)
- Ramsar Convention - The Convention on Wetlands of International Importance (1971)
- UN Framework Convention on Climate Change (1992)
- Kyoto Protocol to the UN Framework Convention on Climate Change (1997)
- Commitments arising from the World Summit on Sustainable Development, Johannesburg (2002)
- Paris Agreement (2015)
- Charter for the Protection and Management of Archaeological Heritage (1990)
- The World Heritage Convention (1972)
- Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention) (1998)

European

- Ambient Air Quality Directive (2008/50/EC)
- Thematic Strategy on Air Pollution (2005)
- Establishing measures for the recovery of the stock of European eel 2007 (1100/2007)
- Our life insurance, our natural capital: an EU biodiversity strategy to 2020 (2011)
- Fresh Water Fish Directive (2006/44/EC)
- Directive on the Conservation of Wild Birds (79/409/EEC) (as amended)
- Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna (92/43/EEC)
- 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)
- Limiting Global Climate Change to 2 degrees Celsius - The way ahead for 2020 and beyond (2007)
- A Clean Planet for all: A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy (2018)
- Promotion of the use of energy and renewable sources Directive (2009/28/EC)
- Energy Act 2013
- Mainstreaming sustainable development into EU policies: 2009 Review of the European Union Strategy for Sustainable Development
- European Commission Environmental Liability Directive (2004/35/EC)
- Directive on the assessment of the effects of certain plans and programmes on the environment (2001/42/EC)
- The Convention for the Protection of the Architectural Heritage of Europe (Granada Convention) (1985)
- The European Convention on the Protection of Archaeological Heritage (Valletta Convention) (1992)
- The European Landscape Convention (2006)
- The Environmental Noise Directive (2002/49/EC)
- European Soils Charter (2003)
- Thematic Strategy for Soil Protection (2006)
- The Nitrates Directive (91/676/EEC)
- The Water Framework Directive (WFD) (2000/60/EC)
- Urban Wastewater Treatment Directive (91/271/EEC)
- Drinking Water Directive (1998/83/EC)
- Directive on Bathing Water (76/160/EEC); and Directive 2006/7/EC repealing Directive 76/160/EEC (from 2014)
- Groundwater Directive (2006/118/EC)
- Marine Strategy Framework Directive (2008/56/EEC)
- Directive on the Assessment and Management of Flood Risks (2007/60/EC)
- Blueprint to Safeguard Europe's Water Resources (2012)

Policies, Plans and Programmes

National

- The Eels (England & Wales) Regulations 2009 (as amended)
- Salmon and Freshwater Fisheries Act 1975
- UK Post-2010 Biodiversity Framework, JNCC and Defra (2012)
- Making Space for Nature - A review of England's Wildlife Sites and Ecological Network (2010)
- Biodiversity 2020: A strategy for England's wildlife and ecosystem services, Defra (2011)
- The Conservation of Habitats and Species Regulations (2010) (as amended)
- The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations (2019)
- Delivering a healthy natural environment. Ecosystem approach action plan, Defra (2010)
- The Invasive Alien Species (Enforcement and Permitting) Order 2019
- The Great Britain Invasive Non-Native Species Strategy, Defra (2015)
- A narrative for conserving freshwater and wetland habitats in England, Natural England (2016)
- Conservation 21 - Natural England's Conservation Strategy for the 21st Century, Natural England (2016)
- State of Natural Capital Annual Report 2020, Natural Capital Committee (2020)
- Standing Advice on Protected Species, Natural England (2016)
- Climate Change Act 2008
- UK Climate Change Risk Assessment, Defra (2017)
- The National Adaptation Programme and the Third Strategy for Climate Adaptation Reporting, Defra (2018)
- National Planning Policy Framework (NPPF) (2021)
- A Green Future: Our 25 Year Plan to Improve the Environment, UK Government (2018)
- Environment Act 2021
- Securing the Future – Delivering the UK Sustainable Development Strategy (2005)
- The Natural Choice: Securing the Value of Nature, Defra (2011)
- Marine and Coastal Access Act (2009)
- The Wildlife and Countryside Act 1981 (as amended)
- Environment Protection Act 1990
- Countryside and Rights of Way (CROW) Act
- Strategic Environmental Assessment, Sustainability Appraisal and the Historic Environment, Historic England (2016)
- The Setting of Heritage Assets, Historic Environment Good Practice Advice in Planning 3, Historic England (2017)
- Ancient Woodland and Veteran Trees: Protecting them from development, Forestry Commission and Natural England (2014)
- Our Waste, Our Resources: A Strategy for England, HM Government (2018)
- Safeguarding our Soils - A strategy for England, Defra (2009)
- Water Resources Act 1991
- Water Industry Act 1991
- Water Act 2003 (as amended)
- Preparing for a drier future: England's water infrastructure needs, National Infrastructure Commission (2018)
- Draft National Policy Statement for Water Resources Infrastructure, Defra (2018)
- Water for Life White Paper, Defra (2011)
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 (as amended)
- Protect groundwater and prevent groundwater pollution, Environment Agency (2017)
- Groundwater protection technical guidance, Environment Agency (2017)
- The Environment Agency's approach to groundwater protection, Environment Agency (2018)
- The Groundwater (England and Wales) Regulations 2009
- Flood and Water Management Act 2010
- National Flood and Coastal Erosion Risk Management Strategy for England, Environment Agency (2020)
- The Flood and Coastal Erosion Risk Management Policy Statement, Defra (2020)
- Flood risk assessments: climate change allowances, Environment Agency (2016)
- The Water Resources Management Plan Regulations 2007
- Water Resources Planning Framework (2015-2065), Water UK (2016)
- Water Supply (Water Quality) Regulations 2016 (as amended)
- National Policy Statement for Wastewater (2012)
- Climate change approaches in water resources planning – Overview of new methods, Environment Agency (2013)
- Drought response: our framework for England, Environment Agency (2017)

Policies, Plans and Programmes

- The Natural Environment and Communities Act 2006 (NERC Act)
- Creating a better place: Our ambition to 2020, Environment Agency (2018)
- UK National Ecosystem Assessment Follow-on (2014)
- National Infrastructure Delivery Plan 2016–2021, Infrastructure and Projects Authority (HM Government) (2016)
- Fixing the foundations: Creating a more prosperous nation, HM Government (2015)
- Environment Act 1995
- The Environmental Damage (Prevention and Remediation) (England) Regulations 2015
- Environmental Assessment of Plans and Programmes Regulations 2004
- Department for Environment, Food and Rural Affairs Outcome Delivery Plan: 2021 to 2022, Defra (2021)
- Planning (Listed Buildings and Conservation Areas) Act 1990
- The Ancient Monuments and Archaeological Areas Act 1979
- Climate Change and the Historic Environment, English Heritage (2008)
- The Clean Growth Strategy (2017)
- Future Water: the Government's water strategy for England, Defra (2008)
- Water Resources Planning Guideline, Environment Agency, Natural Resources Wales, Ofwat (2022)
- The Urban Waste Water Treatment (England and Wales) Regulations 1994
- The Nitrate Pollution Prevention Regulations 2015
- Managing Water Abstraction, Environment Agency (2016)
- Marine Plans – South East Inshore, South Inshore, South Offshore, Marine Management Organisation
- UK Marine Policy Statement (2011)
- Chalk Stream Restoration Strategy 2021, CaBa (2021)
- Water UK Net Zero 2030 Routemap (2020)
- Water Industry Strategic Environmental Requirements (WISER)
- Water Industry National Environment Programme (WINEP)
- HEAN 12: Statements of Heritage Significance (2019)
- Water and Wetland Heritage Strategy (2015)
- Heritage at Risk Programme

Regional and Local

- Site Improvement Plans for Natura 2000 sites: South West, Natural England
- Local Development Plans (Various)
- Public Rights of Way Improvement Plans (ROWIPs) (Various)
- Local level Green Infrastructure Plans and Strategies (Various)
- Local Flood Risk Management Strategies (Various)
- AONB Management Plans (Various)
- National Character Area (NCA) Profiles, Natural England
- South West River Basin Management Plan (2015)
- South West River Basin Management Plan (2022)
- National Natural Capital Atlas: Mapping Indicators, Natural England (2020)
- South East River Basin Management Plan (2015)
- Draft Cycle 3 River Basin Management Plans for the South West and South East RBDs (2021)
- Catchment Flood Management Plans (2009): South West River Basin; South East River Basin.
- Catchment Abstraction Management Strategies (CAMS) (2016) (Various)
- Wessex Water Draft WRMP24
- Cornwall and Isles of Scilly: Environmental Growth Strategy 2020-2065 (2021)
- Cornwall Nature Recovery Strategy (Pilot Draft v1.5): A Statement of Biodiversity Priorities (2021)
- WCWR Draft Regional Plan (2023)
- WCWR Method Statement: Options (2022)
- WCWR Method Statement: Supply forecasting (2020)
- WCWR Method Statement: Demand forecasting (2020)
- WCWR Method Statement: Environmental Ambition (2020
- WCWR Method Statement: Decision-making (2020)
- WCWR Method Statement: Stakeholder Engagement (2020)
- South West Marine Plan, Marine Management Organisation (2021)
- South Marine Plan, Marine Management Organisation (2018)
- Cornwall Climate Change Action Plan (2019)
- Draft Interim Devon Carbon Plan (2020)
- Draft Climate and Ecological Emergency Action Plan, Bournemouth, Christchurch and Poole Council (2021)
- Towards a Climate Resilient Somerset – Somerset's Climate Emergency Strategy (2020)

Policies, Plans and Programmes	
● Southern Water Draft WRMP24 ● Bristol Water Draft WRMP24 ● Wessex Water Drought Plan (2019) ● Southern Water Drought Plan (2019) ● Wessex Water Drainage and Wastewater Management Plan (DWMP) (2023) ● Southern Water Draft DWMP (2023) ● Bristol Water Drought Plan (2022) ● Forward programme 2021-22, RAPID (2021) ● Meeting our Future Water Needs: a National Framework for Water Resources, Environment Agency (2020) ● Long-term water resources environmental destination, Environment Agency (2020)	● Hampshire County Council Climate Change Strategy 2020-2025 (2018) ● Wiltshire Draft Climate Strategy (2021) ● Shoreline Management Plans (SMP2s) (Various) ● Cycle 1 Flood Risk Management Plans for the South West and South East RBDs (2015) ● Draft Cycle 2 Flood Risk Management Plans for the South West and South East RBDs (2021) ● Environment Agency Devon and Cornwall Area Drought Plan (2017) [note withdrawn Sept 2022, however new version not yet released].
South West Water	
● South West Water's Climate Change Adaptation Report (2021) ● Environment Policy (2019) ● South West Water & Bournemouth Water Final Water Resources Management Plan (2019) ● SWW Drought Management Plan (2022) ● Drought Plan: Isles of Scilly (2022) ● Our Promise to the Planet: Carbon-busting Net Zero Plan, South West Water (n.d.) ● Draft Drainage and Wastewater Management Plan (2020)	● West Country South Strategic Resource Options (SROs), Gate 1 Submission Documents (2021) ● Upstream Thinking Report (2020) ● Business Plan 2020-2025 ● Asset Management Policy (2020) ● Pollution Incident Reduction Plan (2020) ● Environment Plan to 2050 (2019)

4.5 Identification of Key Themes and Messages

4.5.1 The main themes, messages and objectives from the policies, plans and programmes review that are considered relevant to the SWW WRMP24 are presented below. These are as follows:

- Conserve flora and fauna and their habitats, including designated and non-designated sites;
- Conservation and wise use of wetlands and their resources;
- Protection of wild birds and their habitats;
- Support environmental and BNG;
- Integrate ecosystem service and natural capital principles;
- Halt overall biodiversity loss and support the protection, recovery and enhancement of biodiversity;
- Contribute to nature recovery and nature recovery networks and strategies;
- Creation of green infrastructure;[47]
- Protection of landscape character and quality;
- Improve water quality so all waters achieve 'good status' as set out in the WFD;
- Prevent or limit inputs of pollutants into groundwater;
- Monitor and provide information to consumers on drinking water quality;
- Promote efficient use of water;
- Reduce and manage the risks of flooding through sustainable design;
- Reduce GHG emissions to support the transition to the UK Government's 2050 net zero target;
- Adapt to the impacts of climate change including drought, flooding and peak water demand conditions;
- Increase resource efficiency and reduce natural resource use and waste;
- Create a green economy and promote sustainable growth;
- Promote sustainable and healthy communities;[48]
- Promote social inclusion and community participation;
- Protect cultural heritage assets including archaeology and built heritage;
- Protect best quality soils and agricultural land;
- Improve the health and resilience of peatland areas; and
- Improve soil health.

4.5.2 In addition, support the Lawton recommendation[49] for statutory undertakers planning the management of water resources to:

- Make space for water and wildlife along rivers and around wetlands;
- Restore natural processes in river catchments, including in ways that support climate change adaptation and mitigation;
- Accelerate the programme to reduce nutrient overload, particularly from diffuse pollution;

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47 The UK Government (2018) *25-year Environment Plan - including a sub-objective for the provision of more and better-quality green infrastructure including urban trees*. Available at: https://www.gov.uk/government/publications/25-year-environment-plan

48 The UK Government definition of sustainable communities as outlined in the document 'Sustainable Communities: Homes for All' (ODPM, January 2005, page 74) is: "*Sustainable communities are places where people want to live and work, now and in the future. They meet the diverse needs of existing and future residents, are sensitive to their environment, and contribute to a high quality of life. They are safe and inclusive, well planned, built and run, and offer equality of opportunity and good services for all*".

49 Lawton (2010) *Making Space for Nature*. Available at: https://webarchive.nationalarchives.gov.uk/ukgwa/20130402151656/http:/archive.defra.gov.uk/environment/biodiversity/documents/201009space-for-nature.pdf

- Support the UK Government's 25 Year Plan to Improve the Environment[50]:
- Using and managing land sustainably – including embedding an "environmental net gain" principle into development (as supported by the Environment Act 2021);
- Recovering nature and enhancing the beauty of landscapes;
- Connecting people to the environment to improve health and wellbeing;
- Increase resource efficiency and reducing pollution;
- Securing clean, healthy and productive and biologically diverse seas and oceans; and
- Protecting and improving the global environment.

4.5.3 The themes, messages and objectives identified from the policies, plans, and programmes review supported the identification of key issues and opportunities for the development of the SEA Framework.

[50] UK Government (2018*) A Green Future: Our 25 Year Plan to Improve the Environment.* Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf

5 Baseline Environmental Review

5.1 Introduction

5.1.1 Current environmental and socio-economic baseline information was collated and reviewed for the SWW WRMP24 area. The baseline was collected from published sources and is summarised in the sections below. This information forms an evidence base against which environmental issues or opportunities resulting from the WRMP24 can be assessed. The baseline information is presented under the SEA Regulations topics:

- Biodiversity, Flora, and Fauna;
- Water;
- Soil;
- Air;
- Climatic Factors;
- Population and Human Health;
- Historic Environment;
- Landscape; and
- Material Assets.

5.1.2 The SWW WRMP24 covers a large geographical area, and the baseline is therefore a high-level review of conditions within the region, rather than being location specific.

5.2 Baseline Information

A summary of the baseline information collected for the WRMP24 is presented below. A full review of the baseline is presented within **Annex 1: Appendix C**. Maps showing key spatial baseline data are presented within **Annex 1: Appendix D**.

Biodiversity, Flora and Fauna

5.2.1 The SWW region is rich in habitat species and diversity, with priority species that include otters, dormice, cirl bunting and several species in decline. There is a large stretch of coastline in the SWW region, which supports a wide range of wetland, coastal and estuarine habitats and species. Priority habitats make up 18% of the SWW region equating to a total of 206,581ha. The recently confirmed West Penwith Moors and Downs SSSI is located within the SWW region and comprises 3,152 ha of semi-natural habitat which is habitat rich and supports a diverse range of ecosystems. There are 58 designated sites for nature conservation within the SWW region including 41 Special Areas of Conservation (SACs), 11 Special Protection Areas (SPAs) and six Ramsar sites. There are 280 Sites of Special Scientific Interest (SSSIs), 17 National Nature Reserves (NNRs) and 63 Local Nature Reserves (LNRs). Marine designations include 48 Marine Conservation Zones (MCZs) and there are 27 Shellfish Waters Protected Areas within the SWW region.

Water

5.2.2 Bournemouth and the Isles of Scilly are two areas within SWW's coverage that are classed as regions with serious water stress, with the regions of Devon and Cornwall still experiencing pressure on water resources. Additional water stress is anticipated as a result of climate change alongside population and economic growth. The South West and South East River Basin Districts (RBDs) make up the SWW region. The achievement of 'Good' status under the WFD Directive in both RBDs is commonly affected by pollution from rural areas (e.g. nitrates),

pollution from wastewater and physical modifications. Furthermore, abstraction can limit flows to reach 'Good' ecological status, and cause poor status of groundwater bodies. The South West and South East RBDs comprise individual management catchments. All waterbodies within these management catchments failed the WFD chemical status. Flood risk across the SWW region is diverse and can occur from a wide range of sources including rivers and the sea, groundwater, reservoir and surface water. Climate change is projected to increase the likelihood of extreme weather events, leading to an increased risk of flood events. An increasing population and development of hardstanding areas are likely to exacerbate these flood risks.

Soils

5.2.3 The SWW region has a strong agricultural presence, particularly in the South West, where soils are predominantly of agricultural land classification Grade 3 and 4 with pockets of urban and non-agricultural land. There are some areas of Grade 1 (excellent quality agricultural land), particularly within East Devon and on the outskirts of Devon. There is also a rich mining history and significant areas of peatland within the South West of England. There are 94 authorised landfill sites and 1,040 historic landfill sites across the SWW region.

Air

5.2.4 Air quality within the SWW region is varied and pollutants are likely associated with industrial or transport activities. Nine local authorities within the region have declared Air Quality Management Areas (AQMAs) and there are 27 AQMAs designated within the SWW region in total. AQMAs are declared where the national air quality objectives are not being met. A majority of AQMAs which fall within the SWW region are designated for Nitrogen dioxide (NO_2) and Particulate Matter (PM_{10}).

Climatic Factors

5.2.5 The Met Office UK Climate Projections (UKCP18) indicate that for the South East of England, annual mean temperatures are projected to increase by 1.8°C[51]. Average mean summer temperatures are projected to see increases of 2.4°C with extreme mean maximum summer temperatures increasing by 2.8°C. Seasonal variability in precipitation rates is projected with a 25.1% decrease during summer months and an increase of 11.6% during winter months. The total carbon dioxide (CO_2) emissions for the SWW region in 2019 estimated to be 19,551 kilo tonnes ($ktCO_2$) (not including land use, land-use change, and forestry (LULUCF)). The transport sector contributed the highest proportion of emissions to the total in 2019 followed by the domestic and industrial sector. The LULUCF sector is estimated to be responsible for the removal of 879$ktCO_2$ equating to a 4% reduction in the total CO_2 emissions.[52]

Population and Human Health

5.2.6 Approximately 3.1 million people live within the SWW region. Projections show that there is expected to be an increase of 300,000 people requiring a SWW supply by 2044/45. Life expectancy at birth for both males and females in the SWW region is better than the England average and against the various indicators included within the Public Health Profiles, the SWW region is generally better than the national average (indicative data), at approximately 80.3 years for males and 84.1 years for females[53]. The IMD (2019) for the Lower Super Output Areas (LSOAs) within the region are ranked from 1 to 10 with 1 being the most deprived and 10 being the least. 49% of the LSOAs in the region have an IMD ranking of over 8, 40% have a ranking

[51] Calculated using the RCP8.5 scenario at the 50th percentile against a 1981-2010 baseline.

[52] Met Office (2023) *UK Climate Projections.* Available at: UK Climate Projections (UKCP) - Met Office

[53] Office for National Statistics (2021) *Life Expectancy for Local Areas of the UK.* Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/bulletins/lifeexpectancyforlocalareasoftheuk/between2001to2003and2018to2020

of between 4 and 7 and the remaining 11% are 3 or below. Tourism is an important sector within the SWW area, attracting visitors from across the UK and internationally.

Historic Environment

5.2.7 The SSW region is rich in heritage with over 43,000 listed buildings, over 4000 scheduled monuments, over 100 registered parks and gardens, five registered battlefields and two UNESCO world heritage sites. The Local Authorities in the SWW region will hold a Historic Environment Record (HER) which is a database of archaeological sites, listed buildings and other historic buildings, and finds of historic objects. There is also potential for unidentified heritage assets and archaeological remains to be present within the region. There are water-dependent heritage assets and water sensitive historic environments within the SWW region that are sensitive to changes in water levels and water quality.

Landscape

5.2.8 The landscape across the SWW region is comprised of uninterrupted views, scattered settlements and mixed agriculture, and includes the rugged coastlines of Cornwall and Devon. The region is situated within areas of high tranquillity. There are no known Green Belts situated within the SWW region. There are 18 National Character Areas (NCAs) within the SWW boundary which divide the landscape into distinct areas. There are three National Parks within the region: Dartmoor, Exmoor and New Forest. There are also ten Areas of Outstanding Natural Beauty (AONBs) located within the SWW region, which are protected to conserve and enhance their natural beauty and distinctiveness.

Material Assets (resource use and built assets & infrastructure)

5.2.9 Road transport routes within the SWW region are limited with large parts of Cornwall relying on the A30 road. The Northern areas of Devon and Cornwall are accessible to the M5 Motorway. Areas in Dorset rely on A-roads to connect to Hampshire and Wiltshire, as well as the M3 Motorway which leads from Southampton to London. Rail links within the SWW region connect rural areas, where rail travel can then be taken to Bristol and London. In 2019/2020, the total amount of local authority waste within the SWW region was 2.6 million tonnes compared with 25.6 million tonnes nationally. Incineration accounts for the most common waste disposal method by local authorities in the region.

5.3 Future Baseline

5.3.1 The SEA Regulations require that “the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the Plan or Programme” are identified. Future trends feed into the development of key sustainability issues in **Section 6.1** and the SEA framework in **Section 7.1**, for incorporation into the assessment of the potential sustainability effects of the WRMP24 options. Prediction of future trends is complex because they depend on a wide range of global, national and regional factors and decision making. Key trends have been identified and from an initial review it is likely that the following trends will continue:

- **Biodiversity, Flora and Fauna** – habitats and species are likely to continue to be protected through UK legislation. England’s wildlife habitats have become increasingly fragmented and isolated, leading to declines in the provision of some ecosystem services, and losses to species populations. Lawton (2010)[54] recognises that future climate change, demographic change, economic growth, new technologies, societal preferences and changes in policy and

[54] Lawton (2010) Making Space for Nature. Available at: https://webarchive.nationalarchives.gov.uk/ukgwa/20130402154501/http:/archive.defra.gov.uk/environment/biodiversity/index.htm

regulatory environments may all have profound consequences[55]. The State of Nature 2019[56] report underlines the continued decline of biodiversity resulting from intensification of land management and impacts of overfishing in marine ecosystems. However, new legislation such as the Environment Act 2021 is likely to continue the protection of biodiversity by providing a framework for a legally binding target of net gain within the planning system. This includes implementing the locally-led Nature Recovery Network throughout England to support nature regeneration.

- **Water** – As part of the WCWR Draft Regional Plan, future scenarios were modelled to review the catchments within WCWR, including the SWW region, under two "environmental destination" scenarios:
  - Business as usual (BAU), i.e. the current policy and regulatory approach remain unchanged, therefore substantial reductions in abstraction will be required to maintain the current level of environmental protection; and
  - Enhanced, i.e. climate change will have a significant reduction on flows by 2050, therefore the additional flow constraints will be imposed to offset climate change impacts and to enable the sites to meet their environmental objectives.

5.3.2 According to **Figure 6** of the WCWR Draft Regional Plan, under the BAU scenario, water available for use in the SWW region (excluding the Isles of Scilly) will fall by 146 Ml/d, and under the enhanced scenario the water available for use will fall by 189 Ml/d.

5.3.3 The WCWR Draft Regional Plan also included predictions of water availability between different emissions scenarios including two representative concentration pathways (RCPs). The RCP6.0 probabilistic climate projections were used for the central emissions scenario, whilst the higher emissions scenario used the RCP8.5 regional climate model projections, indicating the worse-case impacts of climate change. Accordingly, the SWW WRZs (excluding Isles of Scilly), will see a reduction in water available for use of 84Ml/d by 2050 in the RCP6.0 scenario, and a reduction of 128Ml/d by 2050 in the RCP8.5 scenario.

5.3.4 Water quality is likely to continue to be maintained and improved through legislation such as the WFD and statutory requirements around Drainage and Wastewater Management Plans (DWMPs). Bournemouth and the Isles of Scilly are already water-stressed, and while Devon and Cornwall are not currently under serious water stress, projected economic and population growth will likely place further pressure on the region's water resources and water dependent environments. There is potential for an increased need for wastewater treatments as a result of WFD water quality standards combined with population increase. Given the energy intensity of wastewater treatment, the water industry CO_2 emissions may increase and further contribute to climate change. The Isles of Scilly have been identified as being at high risk from climate change due to sea level rise, and boreholes used for public water supply in this area along with other coastal areas in the SWW region that are at risk from sea level rise, are at risk from climate change.

5.3.5 Changes in flow regime in the future are also important to consider, particularly as peak flows may see greater variation due to climate change. Increase in precipitation intensity and winter precipitation due to climate change could exacerbate flooding by increasing high flows. As summer flows are projected to decrease due to climate change, there could be large reductions in flows projected across the country and particularly in the South West of England[57]. The increase in peak river flows projected for the 2080s for the South West RBD at the upper end

[55] Lawton (2010) *Making Space for Nature*. Available at: https://webarchive.nationalarchives.gov.uk/ukgwa/20130402154501/http://archive.defra.gov.uk/environment/biodiversity/index.htm

[56] State of Nature Partnership (2019) *State of Nature Report*. Available at: https://nbn.org.uk/wp-content/uploads/2019/09/State-of-Nature-2019-UK-full-report.pdf

[57] Lane, R.A. and Kay, A.L. (2021). Climate Change Impact on the Magnitude and Timing of Hydrological Extremes Across Great Britain. [Online]. Available at: https://doi.org/10.3389/frwa.2021.684982

allowance (i.e. based on the 95th percentile of possible scenarios, wherein 5% of the scenarios exceed the allowance level) range from 74% to 105%[58]. This will have severe implications on the aquatic environments as well as future water supply in the SWW region.

5.3.6 In terms of groundwater, the effects of climate change in the future may reduce the rate of recharge, however the greater variability in rainfall may result in more frequent and extended periods of high or low water levels. The effects of this may include the increased frequency and severity of groundwater droughts and floods, saline intrusions in coastal aquifers, and the mobilisation of pollutants due to the seasonally high water tables[59].

- **Soils** – as the population increases it is likely that more brownfield land will be remediated and developed, due to the need for land for housing. There is potential for a loss of agricultural land through development pressures, but also intensification within agricultural land due to changing practices resulting in soil degradation. Damaged or degraded peatlands will see continued protection and restoration through local and governmental programmes, which would lead to improved carbon retention.
- **Air** – new development, economic growth and tourism may lead to increased car journeys and congestion within the area leading to localised air quality effects. Public transport improvements, electrification of railways, national air quality targets, emissions standards for new vehicles, and a shift to electric vehicles should contribute to reducing future air quality effects from motor vehicles. In addition to this, current trends show an increase in remote working following the Covid-19 pandemic, and this is likely to continue resulting in a decrease in traffic movements, and therefore continued improvements to local air quality.
- **Climatic Factors** – the climate is expected to continue to change with annual average temperatures projected to increase, particularly in summer. Winters are projected to be wetter and summers drier. Annual mean temperatures are expected to increase by 1.8°C by 2050, with annual mean temperatures in summer seeing a 2.4°C increase within the same time period. Climate change is projected to result in more extreme weather events, potentially causing or exacerbating periods of drought which alongside population and economic growth will affect water availability. Carbon and other GHG emissions will continue to be emitted, however regulations and legislation will likely continue to promote the reduction in emissions through commitments to net zero. The water industry in the UK is aiming to become net zero by 2030[60].
- **Population and Human Health** – water available for consumptive use may be affected by climate change whereby access to water is limited through more frequent droughts or floods. Population is projected to increase in the region, mirroring that of the rest of the country. Over the past 3 years, population has grown nationally at an average of 0.67% per year, and this can currently be expected to continue. This is despite the fact that population increase slowed in 2020 due to the pandemic. Life expectancy in the South West is also higher than the national average, meaning that the population of older persons in the region is likely to increase. As such, water demand is expected to increase, and further pressure will be placed on water resources within the region. When considering IMD, the number of LSOAs in the South West in the 10% least deprived areas increased between 2015 and 2019. This may suggest a trend that will continue over the next few years, with more areas within the South West moving into this bracket. During this time period however, more areas also moved into the 10% most deprived, leading to a starker economic divide between areas within the region. Community facilities, including libraries, village halls and parks, will

[58] Environment Agency (2021). *The South West River Basin District Draft Flood Risk Management Plan 2021 to 2027*. Available at:https://www.gov.uk/government/publications/south-west-river-basin-district-flood-risk-management-plan

[59] UK Groundwater Forum (2011) *Groundwater Resources and Climate Change.*

[60] Water UK (2020) *Water Industry Plans to Reach Net Zero Carbon by 2030*. Available at: https://www.water.org.uk/news-item/water-industry-plans-to-reach-net-zero-carbon-by-2030/

continue to play an important role in community cohesion and sense of wellbeing, particularly within the numerous rural communities throughout the South West region.

- **Historic Environment** – In 2020 and 2021, the data collection for the Heritage at Risk findings have been impacted by COVID-19, therefore trend data has not been reported to avoid comparisons with preceding data, although desk-based assessments and updates were still undertaken. According to these assessments and updates, there are now 181 fewer heritage assets at risk than in 2019, with successes in protecting heritage such as buildings, structures and archaeology[61]. This apparent trend in the decrease of heritage assets at risk is likely to continue and historic assets will likely continue to be protected through UK legislation. Development could however put pressure on heritage assets and their setting. Water supply and demand activities may affect historic environments, particularly those that are water-dependent. For example, waterlogged remains in areas that are dependent on groundwater may see water levels reduced as more water is abstracted, therefore reducing their preservation potential. Climate change may also put heritage assets at risk, for example through damage from storms and floods, or loss through sea-levels rising and coastal erosion.
- **Landscape** – Although national legislation (including legislation which regard interconnected topics such as biodiversity and historic environment) will likely continue to protect and enhance landscapes, the changing and continued development within the region will likely affect the quality and character of local landscapes and seascapes. The region will continue to be among the most tranquil in the UK.
- **Material Assets** – regeneration and future investment and demand are likely to increase the number and quality of material assets such as housing, transport infrastructure and waste facilities. This is likely to be exacerbated with regional population growth and subsequent requirements for additional housing and related infrastructure to support a larger population. The increase in population within the region is likely to continue and put further strain on housing and local infrastructure where demand outweighs supply and houses for local people will likely continue to be a key political focus point. Future political policies may seek to restrict or reduce the number of second and holiday homes within certain areas such as within Devon and Cornwall to reduce competition with residents.

[61] Historic England (2020) *Heritage at Risk.* Available at: https://historicengland.org.uk/advice/heritage-at-risk/findings/

6 Key Environmental Issues and Opportunities

The SEA Regulations require:

Consideration of 'any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of particular environmental importance, such as areas designated pursuant to Council Directive 79/409/EEC on the conservation of wild birds (a) and the Habitats Directive'

SEA Regulations Schedule 2 (4) (2004)

6.1 Key Issues, Opportunities and Scoping

6.1.1 A key stage in the scoping process is to determine what topics are relevant for the SWW WRMP24 SEA and what topics (if any) should be scoped out. It is considered that all the SEA Regulations topics are relevant to the WRMP24 and therefore they have all been scoped in, as presented in **Table 6.1**, which also provides an overview of the key issues and opportunities relevant to each SEA Regulations topic.

6.1.2 Topics were scoped in and assessed by reviewing baseline conditions and current environmental issues and opportunities for the SWW region and assessing the likelihood of a potential effect.

Table 6.1: Key Issues and Opportunities

SEA Topic	Scoped in	Issues	Opportunities
Biodiversity, Flora and Fauna	Yes	The SWW region is rich in habitats and species diversity, and includes national and internationally designated sites including SSSIs, NNRs, SPAs, SACs and Ramsar sites. Development of new water infrastructure can directly or indirectly affect designated and non-designated sites (such as CWS), habitats and species through loss of land, disturbance and damage. There is potential for the options within the SWW WRMP24 to result in surface and/or groundwater pollution which could have an effect on wildlife. Blanket bog, wetland and marsh habitat rely on water, and the SWW WRMP24 should ensure that it does not affect these areas through over abstraction and should look for opportunities to reduce abstraction pressure, where cost effective and possible.	The SWW WRMP24 should ensure that there are no effects on biodiversity and should look to enhance biodiversity and achieve BNG. There are opportunities to include options which result in improvements to the natural environment and BNG through habitat creation or enhancement; support Nature Recovery Networks and Strategies; increase connectivity of ecological networks to increase species resilience; and introduction of vegetation to slow run-off and reduce flood risk, amongst others. • The WRMP24 should: Protect, conserve and enhance biodiversity • Slow/halt biodiversity losses/declines • Integrate biodiversity into new infrastructure
Water	Yes	Phosphate and physical modifications are the most common pressures affecting the achievement of 'Good' status under the WFD Directive. The significant water management issues which are most common in affecting the achievement of 'Good' are pollution from rural areas, pollution from wastewater, and physical modifications. There is potential for the options within the SWW WRMP24 to have a negative effect on water quality. Groundwater levels and quality may be affected by abstraction pressures coupled with climate change. For example, groundwater recharge may reduce due to the increased frequency of droughts, but there may be more frequent and severe groundwater-related floods due to the greater variability of rainfall. Seasonally high water tables may also increase the mobility of pollutants in	The SWW WRMP24 should avoid options which have a negative effect on water quality or ecology. Options which reduce pressures on the water environment should be explored. WFD has been considered during the optioneering process to ensure the selection of options which could lead to WFD improvements or avoid WFD deterioration, cognisant of statutory requirements to avoid deterioration risk as set out in the PR24 Water Industry National Environment Programme (WINEP) guidance documentation. It is recognised that any options that pose a deterioration risk to WFD status would not be supported by the EA. The SWW WRMP24 has the opportunity to improve the environment by leaving more water in the region's rivers, streams and underground sources. This would

SEA Topic	Scoped in	Issues	Opportunities
		aquifers. The risk of saline intrusions in coastal boreholes due to abstraction pressures and sea levels rising may, for example, reduce the water quality for public water supply. There are a high number of bathing water sites in the SWW area, the majority of which have been classified as Excellent. Pollution from wastewater poses a significant risk to bathing water quality. Areas of the region are at high risk of flooding from both surface water and rivers and the sea (e.g. River Exe, Axe and Avon areas). There is potential that the options within the WRMP24 could be affected by or contribute to an increased risk of flooding.	help maintain water levels, support water-based habitats and reduce the risk of concentration of pollutants in water bodies. The options within the SWW WRMP24 should avoid areas at high risk of flooding and, where appropriate, implement measures to reduce flood risk. The WRMP24 should: • Ensure the protection, improvement and sustainable use of waterbodies • Avoid, control or reduce water pollution • Leave more water in the natural environment • Reduce or mitigate flood risk • Support the maintenance or improvement of bathing water quality
Soil	Yes	Agriculture has a dominant role in the landscape of the SWW region. Agricultural land of Grades 3 and 4 are the most common across the region. The SWW area is dominated by two main soil types – freely draining, slightly acidic loamy soils; and slowly permeable, seasonally wet acidic loamy and clayey soils. The options within the SWW WRMP24 have the potential to result in a loss of agricultural land or through a reduction in water availability for agricultural processes. There is also potential for soil and sediment contamination through the construction phase. The South West region also has extensive areas of peatland that play an important role in water retention. Peatland in the South West is an important source for SWW's water supply. The options within the SWW WRMP24 may have an effect on the peatlands' capacity	Soil is an important natural resource and as such the SWW WRMP24 should consider the effect of options on the soil stocks and avoid options which have significant negative effects. The options within the SWW WRMP24 should avoid effects on agricultural land of Grade 1 and 2 if possible, and mitigation should be included where effects are unavoidable. There are opportunities for the options to positively affect agriculture, for example options to increase raw water storage and supply. The WRMP24 should: • Promote regenerative agricultural practices • Prioritise the implementation of catchment management solutions to help manage soils, increase soil health and reduce effects of waterbodies

SEA Topic	Scoped in	Issues	Opportunities
		to retain water through damage to the peatland and moorlands during construction. Further, the SWW area has notable geological features of international importance including the Dorset and East Devon ('Jurassic') Coast UNESCO WHS and English Riviera UNESCO Global Geopark. These should be protected and enhanced where possible. In addition, there are over 90 authorised landfill sites.	• Ensure measures are taken to prevent soil erosion • Reduce nutrient loads within surface water and groundwater bodies • Peatland restoration to enhance its ability to store and release clean water and sequester carbon • Protect and enhance sites of geological importance
Air	Yes	Air quality in the region is varied. Generally, it is good, however there are nine local authorities within the SWW region that have designated AQMAs. Air pollution sources include transport and industry. The options within the SWW WRMP24 have the potential to affect air quality. This could include the generation of air pollutants from treatment plants and there is also likely to be effects from the construction phase.	There is potential for the SWW WRMP24 to mitigate any increases in air pollutants as a result of the options and improve air quality in the region. The WRMP24 should: • Improve local air quality
Climatic Factors	Yes	The SWW region is projected to have hotter and drier summers, and wetter and warmer winters, as well as short duration "extreme weather events" such as thunderstorms and heatwaves. There is potential that this could affect water availability through increases in periods of drought. Sea level rise from climate change could impose a risk to coastal boreholes used to supply water to the public through rising salinity levels. Increasing sea level can also contribute to increased coastal erosion and flooding. There is also potential for options within the SWW WRMP24 to result in carbon emissions during the	The SWW region has the opportunity to consider the effects of climate change within the option selection process. Measures to increase the resilience of the option to a changing climate could also be considered. This includes the mitigation of the effects of climate change-induced sea level rise and coastal erosion as set out in the DWMP[62], as well as adapting to these changes in line with where the Shoreline Management Plans promote No Active Intervention or Managed Realignment, particularly where assets will be affected in the future by erosion rates. The options should also consider the effect on climate change through the optioneering and design processes.

[62] South West Water (2020). *Draft Drainage and Wastewater Management Plan*. [Online]. Available at: https://www.southwestwater.co.uk/siteassets/document-repository/business-plan-2020-2025/drainage-and-wastewater-management-plan.pdf

SEA Topic	Scoped in	Issues	Opportunities
		construction and operational phases which will further contribute to climate change.	The SWW WRMP24 has the opportunity to address the effects of climate change on demand for water and how much is available, and to increase the region's resilience to severe drought and other extreme events and stresses. The WRMP24 should: • Increase resilience to climate change, including the resilience of resources, infrastructure and the environment • Reduce contributions to climate change • Ensure zero net emissions • Promote nature based solutions and restore habitats to offset and sequester carbon within the SWW region, while also achieving BNG
Historic Environment	Yes	The SWW region is rich in heritage and contains many listed buildings, scheduled monuments, and registered parks and gardens, amongst others. The region also contains two UNESCO World Heritage Sites, and hundreds of Heritage At Risk sites which are sensitive to environmental change and human actions. It is also likely that most of the Local Authorities in the SWW region will have designated Conservation Areas. The options within the SWW WRMP24 have the potential to, directly or indirectly, effect the historic environment through changes to the asset's fabric or setting. The construction of water infrastructure and the activities under water resources management can affect heritage assets, particularly those that are water sensitive or water dependent.	The options within the SWW WRMP24 should consider the historic environment and seek to avoid any adverse effects where possible, or otherwise minimise and mitigate them. The WRMP24 should: • Protect archaeology • Careful consideration to the siting of options to reduce effects on historic assets and their setting • Encourage public awareness through promoting heritage sites, including enhancing access and enjoyment • Explore opportunities to enhance the significance of heritage assets and their setting
Landscape	Yes	The SWW region's landscape is diverse and there are numerous important landscapes within the region,	Consideration of the effects on landscape, townscape and seascape should be considered as part of the

SEA Topic	Scoped in	Issues	Opportunities
		including three National Parks, 10 AONBs, 18 Heritage Coasts, UNESCO World Heritage Sites, and an area designated as UNESCO Biosphere Reserve. There is potential for the options within the SWW WRMP24 to have an effect on the landscape, townscape and seascape. This could include construction effects and also effects associated with infrastructure which could affect visual amenity or the character (landscape, townscape and seascape) of the area. The SWW region also contains areas of high tranquillity, which could be disturbed by additional infrastructure associated with the WRMP24 options.	option development. There is potential for the SWW WRMP24 to enhance the landscape, townscape and seascape. This may involve selecting certain materials or colours for the option or through planting or habitat creation. The WRMP24 should: • Ensure the protection of landscape, townscape and seascape characters • Avoid effects on designated landscapes and their setting, and to minimise and mitigate negative effects where avoidance is not possible • Enhance landscapes, townscapes and seascapes by working with stakeholders through habitat creation, implementation of catchment-based solutions and safeguarding existing habitats
Population and Human Health	Yes	There are approximately 3.1 million people living within the SWW Region. The population of the area is expected to grow, which will likely place additional pressure on the water environment within the region. Economic growth and climate change will also add to this pressure. Growth in tourism within this region will also contribute to stresses in water demand, particularly during the summer months. Health within the region is generally good. Almost half of the SWW region falls into the least deprived areas in England, however 11% of the SWW region remains some of the most deprived in the country. The options within the SWW WRMP24 have the potential to result in disturbance effects during the construction phase. There is also potential for effects on the water or natural environment (as noted in the above SEA Topics)	There is an opportunity for the SWW WRMP24 to engage with the local community. The SWW WRMP24 could also look to maximise opportunities for recreation through enhancing access and the condition of the water environment, greenspaces or areas of the natural environment. Thus, improving the inclusivity of and connection to the local natural environment. The SWW WRMP24 also has the opportunity to ensure a resilient and reliable water supply for customers now and in the future, ensuring there is enough water for a growing population and to support economic growth. The WRMP24 should ensure an economically sustainable water supply for customers. This may see the economic value of water increase and require a greater value to be assigned to water through increased charges and/ or seasonal water rates, where affordable.

SEA Topic	Scoped in	Issues	Opportunities
		which could have effects on recreation and wellbeing due to reductions in the quality of recreational assets.	The WRMP24 should: • Prevent disturbance effects for the local community • Enhance the natural environment for recreation purposes • Improve access to the natural environment for all members of the community • Provide a resilient and reliable water supply for customers
Material Assets	Yes	The SWW region contains important transport links including roads, rail and ports which could be affected during construction works. There is also significant water and wastewater treatment infrastructure across the region. The region produces and manages a significant amount of waste, with recycling and composting the most common waste disposal method in the South West region (for local authority managed waste), followed by incineration. Approximately 15% of waste in the region is disposed of to landfill. The SWW WRMP24 has the potential to increase the use of resources such as construction materials and water treatment products, and result in the generation of waste. Depending on the disposal method, this has the potential to increase waste disposal to landfill.	The SWW WRMP24 has the opportunity to consider the use of resources within the option development and reduce the use of energy, materials and prevent waste generation. The WRMP24 should: • Reduce resource use • Minimise waste generation • Avoid effects on the transport network • Achieve required leakage reduction targets • Reduce unplanned outages

7 SEA Framework

7.1 SEA Objectives

7.1.1 A key part of the SEA Scoping process is the development of the SEA Framework. The SEA Framework forms the basis for identifying and assessing the effects arising from the implementation of the SWW WRMP24. This reflects the key sustainability issues and SWW priorities that the SEA seeks to enhance in the WRMP24.

7.1.2 An overarching set of SEA objectives have been developed, as shown in **Table 7.1** below. These are linked to the SEA Regulations topics, and have been informed by the review of policies, plans and programmes and their key requirements (**Section 4.4**); the local baseline conditions and likely future trends of the SWW region (**Section 5 and Annex 1: Appendix C**); and the key priorities for SWW. They have also been informed by a review of the SEA objectives used for WRMP19 and WRMP24 by other water companies in England.

7.1.3 Whilst the SEA objectives are presented under discrete topics, there are some overlaps between objectives with associated sub-themes. For example, the results of the HRA and WFD assessments fed into the SEA objectives for biodiversity and water.

Table 7.1: SWW WRMP24 SEA Objectives

SEA Topics	Number within summaries	SWW WRMP24 SEA Objectives
Biodiversity, Flora and Fauna	1.1	Protect and enhance designated and non-designated ecological sites
	1.2	Protect, conserve, and enhance biodiversity, including priority species, vulnerable habitats, and habitat connectivity
	1.3	Reduce the spread or presence of INNS
Water	2.1	Protect and enhance the quality of the water environment and water resources
	2.2	Increase resilience and reduce flood risk
	2.3	Deliver reliable and resilient water supplies
Soil	3	Protect and enhance the functionality, quantity and quality of soils, including the protection of

SEA Topics	Number within summaries	SWW WRMP24 SEA Objectives
		sites of geological importance
Air	4	Reduce and minimise air emissions
Climatic Factors	5.1	Reduce embodied and operational carbon emissions
	5.2	Reduce vulnerability to climate change risks and hazards
Historic Environment	6	Conserve, protect and enhance the historic environment, including archaeology
Landscape	7	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity
Population and Human Health	8.1	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing
	8.2	Maintain and enhance tourism and recreation
Material Assets	9.1	Minimise resource use and waste production
	9.2	Avoid negative effects on built assets and infrastructure

7.2 Assessment Criteria

7.2.1 Assessment guide questions have been produced for each of the SEA objectives. These are used to guide the SEA assessment to ensure that the same factors are considered by all assessors. **Table 7.2** below presents the assessment guide questions that form the assessment framework for the options and WRMP24 assessment.

7.2.2 This is supported by the detailed Assessment Scoring Criteria in **Annex 1: Appendix E**. This sets out how the scale of effect is determined for each SEA objective. It also specifies key datasets used for the assessment of each objective.

7.2.3 This SEA framework has then been used to assess the WRMP24 options and the preferred and alternative programmes.

Table 7.2: SEA Assessment Guide Questions

SEA Topic	SEA Objective	Assessment Questions/Sub-Themes
Biodiversity, flora and fauna	Protect and enhance designated and non-designated ecological sites	• Is the option likely to affect the conservation status of any SPA, SACs, Ramsar sites, SSSI or locally designated sites? • Will the option affect the marine environment, habitats and species (including Marine Conservation Zones (MCZs) and Marine Protection Areas (MPAs))?
	Protect, conserve and enhance biodiversity, including priority species, vulnerable habitats and habitat connectivity	• Will the option affect any habitats that support legally protected species or species of conservation concern? • Is the option likely to affect blanket bogs/peat, ancient woodland, priority habitats and/or protected and priority species? • Will the option protect and enhance freshwater aquatic and habitats and species? • Is there potential for contribution to achieving 'favourable' conservation status or for creation of new priority habitats? • Is the option likely to have an effect on a current or future Nature Recovery Network? • Are there any opportunities for habitat creation or restoration? • Will the option contribute to the loss or gain in habitat connectivity? • Will the option affect Shellfish Waters or fisheries? • Will the option result in BNG?
	Reduce the spread or presence of INNS	• Is there a possibility for INNS to be spread/ introduced or for algal blooms to occur? • Is there an opportunity to improve biodiversity value through removal of INNS?
Water	Protect and enhance the quality of the water environment and water resources	• Will the option affect surface water quality or quantity? • Will the option affect ground water quality or quantity? • Is the option likely to contribute to or conflict with the achievement of WFD objectives? • Will the option affect bathing waters? • Will the option affect shellfish water protected areas? • Will the option affect raw water quality?

SEA Topic	SEA Objective	Assessment Questions/Sub-Themes
		• Will the option slow the flow in upper catchments and reduce soil losses to river systems? • Will the option comply with flow targets?
	Increase resilience and reduce flood risk	• Is the option vulnerable to flood risk? • Will the option contribute to the risk of flooding? • Will the option mitigate flood risk? (i.e. attenuation of flows through Natural Flood Management, catchment storage etc.)
	Deliver reliable and resilient water supplies	• Does the option provide a reliable and sustainable water supply which meets changing demand? • Will the option protect and enhance the environmental resilience of the water environment to climate change, flood risk and drought? • Does the option reduce the presence of containments in waterbodies, and make more water available to the environment? • Is the option at risk from sea level rise and managed coastal realignment?
Soil	Protect and enhance the functionality, quantity and quality of soils, including the protection of sites of geological importance	• Will the option affect high grade agricultural land and have an impact on food production? • Will the option prevent soil erosion and retain soil stocks as a natural resource? • Will the option promote soil health? • Will the option involve use of brownfield or greenfield land? • Will the option prevent mineral sterilisation? • Will the option affect soil or sediment contamination or involve remediation? • Will the option restore peatland? • Is the option likely to affect geodiversity, including UNESCO sites and SSSIs of geological importance? • Will the option prevent nutrient loading in water bodies?
Air	Reduce and minimise air emissions	• Is the option in an air quality management area (AQMA)? • Will the option affect local air quality?

SEA Topic	SEA Objective	Assessment Questions/Sub-Themes
Climatic Factors	Reduce embodied and operational carbon emissions	• Will the option result in emission of carbon or other GHG emissions? • Is there potential for the option to incorporate climate mitigation measures to reduce its carbon footprint, such as lower embodied carbon or incorporating renewable energy? • Will the option affect carbon sequestration?
	Reduce vulnerability to climate change risks and hazards	• Is the option vulnerable to climate change effects? • Does the option include climate resilience measures? • Will the option create catchment resilience to drought?
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	• Will the option affect designated or non-designated heritage assets, sites and features? • Will the option affect the significance and/or setting of a heritage asset? • Will the option affect archaeology (including areas of archaeological potential and unrecorded archaeology)? • Will the option affect heritage assets at risk? • Will the option affect conservation areas or historic landscape/townscape areas? • Will the option avoid, minimise and mitigate adverse effects on the historic environment? • Will the option enhance the significance of heritage assets including their settings? • Will the option improve public access to, and understanding and enjoyment of, the historic environment?
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	• Will the option protect and enhance designated landscapes and features, and their setting? • Will the option have an effect on the character of the landscape, townscape or seascape, including tranquillity and views? • Will the option create or improve green infrastructure which contributes to access to the landscape? • Will the option seek to avoid, minimise and mitigate adverse effects on landscape, townscape and seascape character? • Will the option offer opportunities for enhancement and improved public access and enjoyment?

SEA Topic	SEA Objective	Assessment Questions/Sub-Themes
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	• Does the option promote water efficiency and encourage a reduction in water consumption? • Will the option secure resilient water supplies for the health and wellbeing of customers? • Will the option allow for economic development? • Will the option allow for economic diversity? • Will the option have an effect on active lifestyles, such as impacts on active travel through disruption to pedestrian and cycle routes? • Will the option affect Public Rights of Way? • Will the option affect road or rail infrastructure? • Will the option minimise disturbance from noise, light, visual, and transport? • Will the local communities have been actively engaged to foster an inclusive environment and participate in decision making?
	Maintain and enhance tourism and recreation	• Will the option maintain or enhance tourism? • Does the option improve access to the natural environment for recreation, including those living within deprived areas? • Will the option have an effect on freshwater or marine fisheries for recreational purposes?
Material Assets	Minimise resource use and waste production	• Will the option reuse existing infrastructure? • Will the option minimise the use of resources? • Will the option reduce the production of waste?
	Avoid negative effects on built assets and infrastructure	• Will the option affect built assets and infrastructure, including transport infrastructure?

8 Environmental Assessment Methodology

8.1 Overview of Environmental Assessment Approach

8.1.1 The approach to the environmental assessments to support the SWW WRMP24 development follows the WRP Guidance and supplementary guidance. The following environmental assessments have been undertaken:

- SEA
- HRA – ToLS and AA
- WFD – Levels 1 and 2
- INNS – screening and detailed risk assessment
- NCA
- BNG

8.1.2 The results of the HRA, BNG, NCA, INNS and WFD assessments have fed into the SEA assessments for the biodiversity objectives, and the WFD assessments have informed the assessment for the SEA water topic.

8.1.3 This Environmental Report summarises the SEA and HLS process providing a strategic-level assessment of the proposed options and plans, with no further detailed assessments undertaken at this stage. This provides a high-level initial assessment of likely risks and opportunities to help the development of the options in the updated dWRMP. Residual risks for each option are subject to change in future with further detailed assessments and refinement of options. Mitigation measures are likely to be required and these will also undergo further development. This means that the scale of effects for each option currently identified in the SEA (i.e. minor/moderate/major positive or negative effects and red/amber/green in the HLS) may change in future, and adverse effects may be revised downwards as mitigation is further developed and confirmed. Any options taken forward in future for implementation would undergo further detailed review and site assessment outside of the SEA process, prior to any construction or other implementation works taking place.

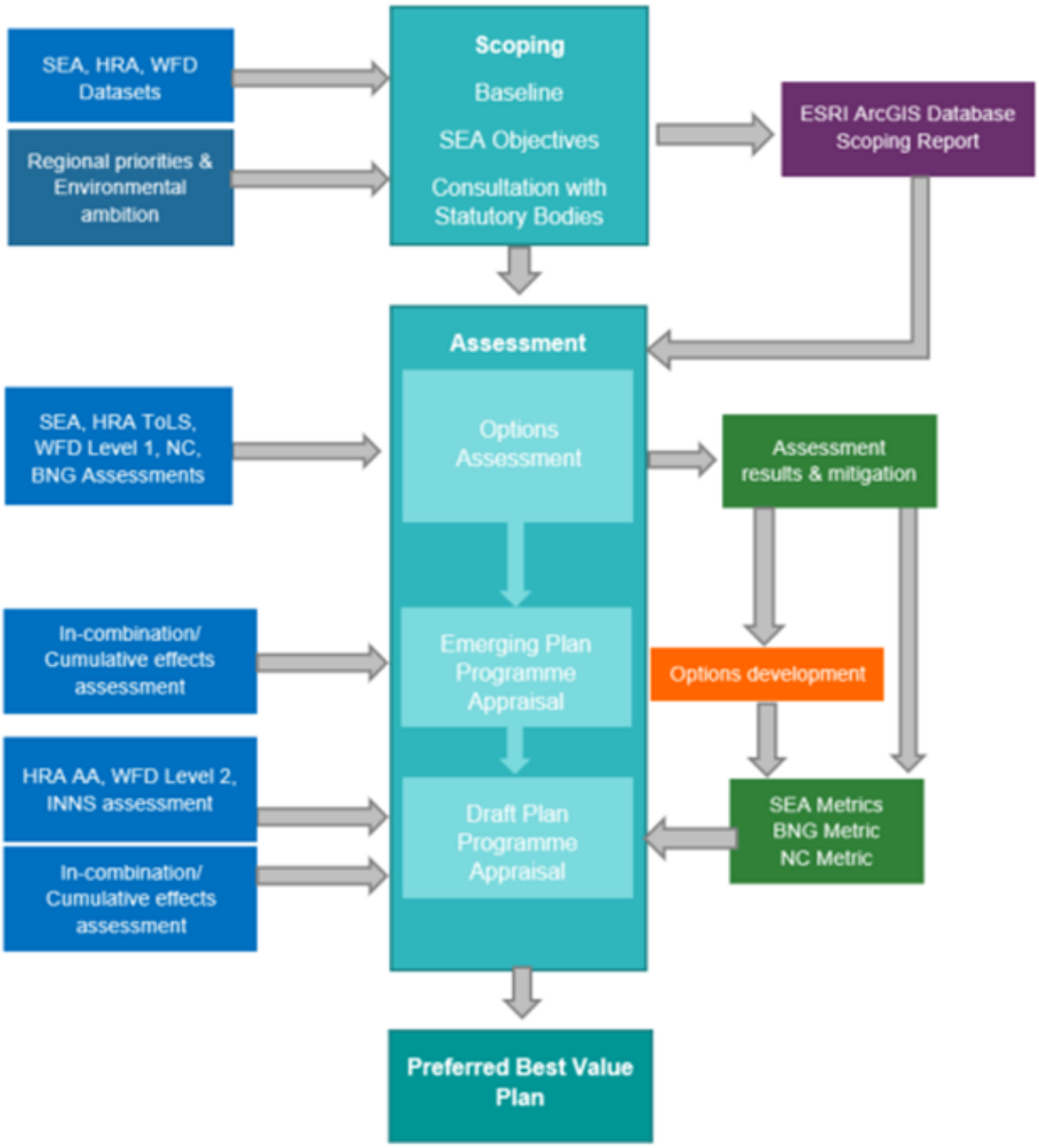
8.1.4 The proposed methodology for the assessments is outlined in the sections below. Option information has been provided by SWW, and the environmental assessments have been undertaken based on local datasets and information. SEA datasets are listed in the Assessment Scoring Criteria in **Annex 1: Appendix E**.

8.1.5 To determine the environmental effects of the options and the preferred plan within the updated dWRMP24, the following tasks have been undertaken:

- Options level environmental assessments for proposed supply and demand options for the updated dWRMP24; and
- Programme level environmental appraisal of the updated dWRMP24 (preferred plan) and the adaptive plan including cumulative and in-combination effects.

8.1.6 **Figure 8.1** presents a diagram of the overarching environmental assessment approach (with the exclusion of the HLS approach), It shows the key interactions between the environmental assessment and the options decision-making and plan development as part of an integrated and iterative process.

Figure 8.1: Environmental Method Integration with Options Decision-Making and Plan Development



8.2 Options Level Environmental Assessments

8.2.1 The options have been assessed using a consistent methodology. This involved assessing each option against the SEA objectives (see **Section 7.1**) using the assessment criteria guide questions to ensure the same factors were considered by all assessors (see **Section 7.2**).

8.2.2 Each SEA objective has a set of defined datasets and a defined scoring system using a qualitative scale of minor, moderate, major positive and minor, moderate, major negative, and neutral effects. When an option results in both positive and negative effects against different elements of a particular objective, these have not been combined. Both positive and negative effects are recorded in the assessments and are represented as split cells showing both effects in the SEA summary tables in **Section 9.**

8.2.3 Each effect in the scoring system has a scoring definition to provide a consistent approach to determining the level of effect. The effects of each option were assessed for each objective using this scale, and a narrative justification produced. The effects and narrative were recorded in a matrix template, with one matrix (covering all objectives) completed for each option.

8.2.4 An ESRI ArcGIS tool was developed to store any environmental data available as GIS datasets as part of the assessment process. This includes option locations and assets, and national and regional datasets. Local datasets (outside of the ESRI ArcGIS tool) were also included where available including County Wildlife Sites (CWS) as well as mineral and waste allocations. This tool was also used to identify the key constraints and opportunities for each option and then professional judgement was used to determine effects pre- and post-mitigation. It is noted that some information may not be as readily available GIS datasets, and where appropriate other data sources have been used, such as plans and information from local councils.

8.2.5 All assessments have been based on option information provided by SWW and their engineering contractors. This included option descriptions, Water Available for Use (WAFU), locations, nature of works, engineering scopes and (where available) GIS Shapefiles.

8.2.6 Where GIS Shapefiles could not be provided by SWW or their engineering contractors, Mott MacDonald's GIS team have digitised the options to produce Shapefiles to enable the assessments to be carried out. This was undertaken either using drawings provided or through collaboration with SWW, which involved the Mott MacDonald GIS team liaising with SWW contacts to confirm option locations, boundaries and pipeline routes, prior to GIS digitisation. It is noted that all option shapefiles were subject to the information available at the time of writing. T

8.2.7 Table 8.1The scoring key is summarised in **Table 8.1** below, alongside the scoring definitions for the biodiversity objective. The scoring definitions for all objectives are presented in full in **Annex 1: Appendix E**).

Table 8.1: Scoring Key

Effect	Description	Example Scoring Definitions – Biodiversity Objective
+++	Major Positive	The option would result in a major enhancement of designated sites/habitats due to changes in flow or groundwater levels, water quality or habitat quality and availability The option would result in a major increase in the population of a priority species Effects could be caused by beneficial changes in water flows/water quality, or moderate amount of creation or enhancement of habitat, promoting a major increase in ecosystem structure, function or connectivity The option would result in a major reduction or management of INNS
++	Moderate Positive	The option would result in a moderate enhancement on the quality of designated and/or non-designated sites/habitats due to changes in flow or groundwater levels, water quality or habitat creation and enhancement measures The option would result in a moderate increase in the population of a priority species Effects could be caused by beneficial changes in water flows/water quality, or moderate amounts of creation or enhancement of habitat, promoting a moderate increase in ecosystem structure, function or connectivity The option would result in a moderate reduction or management of INNS
+	Minor Positive	The option would result in a minor enhancement on the quality of designated and/or non-designated sites/habitats due to changes in flow or groundwater levels, water quality or habitat creation and enhancement measures The option would result in a minor increase in the population of a priority species Effects could be caused by beneficial changes in water flows/water quality, or moderate amounts of creation or enhancement of habitat, promoting a minor increase in ecosystem structure, function or connectivity The option would result in a minor reduction or management of INNS

Effect	Description	Example Scoring Definitions – Biodiversity Objective
0	Neutral	The option would not result in any effects on designated or non-designated sites including habitats and/or species. It will not have an effect on INNS
-	Minor Negative	The option would result in a minor negative effect on the quality of designated and/or non-designated sites/habitats due to changes in flow or groundwater levels, water quality or habitat loss or degradation The option would result in a minor decrease in the population of a priority species Effects could be caused by detrimental changes in flows/water quality or small losses or degradation of habitat leading to a minor loss of ecosystem structure, function or connectivity The option would result in a minor increase or spread of INNS
--	Moderate Negative	The option would result in a moderate negative effect on the quality of designated and/or non-designated sites/habitats due to changes in flow or groundwater levels, water quality or habitat loss or degradation The option would result in a moderate decrease in the population of a priority species Effects could be caused by detrimental changes in flows/water quality or small losses or degradation of habitat leading to a moderate loss of ecosystem structure, function or connectivity The option would result in a moderate increase or spread of INNS.
---	Major Negative	The option would result in a major negative effect on the quality of designated and/or non-designated sites / habitats due to changes in flow or groundwater levels, water quality or habitat loss or degradation The option would result in a major decrease in the population of a priority species Effects could be caused by detrimental changes in flows/water quality, or large losses or degradation of habitat leading to a major loss of ecosystem structure and function 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.

Where sufficient information hasn't been provided in time to facilitate the Option Level Environmental Assessments, an HLS approach has been taken to provide a RAG rating for each environmental feature as identified under the respective SEA topics and scoring criteria **Table** 8.2:**.**

Table 8.2: High-Level Screening Scoring Criteria

SEA Topic	Dataset	Features	RAG criteria		
			Red	**Amber**	**Green**
Air Quality	Air quality management areas (AQMAs)		No criteria	Within 500m of an AQMA	Over 500m from an AQMA
Biodiversity, Flora and Fauna	Statutory designated sites	Special areas of conservation (SAC), Special protection area (SPA), Ramsar	Less than 400m from designated site and/or major adverse effects on linkages to designated sites, and/or their qualifying features and whether the site is a Ground Water Dependent Terrestrial Ecosystem (GWDTE).	Within 400m to 5000m of a designated site and/or moderate/minor adverse effects on linkages to designated sites, and/or their qualifying features and whether the site is a GWDTE.	Over 5000m from a designated site. No adverse effects on linkages to designated sites, and/or their qualifying features and whether the site is a GWDTE.
		Sites of Special Scientific Interest (SSSI)	Direct effect/encroachment upon from SSSI and/or major adverse effects on linkages to designated sites, and/or their qualifying features and whether the site is a GWDTE.	Within a SSSI Impact Risk Zone (IRZ) and/or moderate/minor adverse effects on linkages to designated sites, and/or their qualifying features and whether the site is a GWDTE.	Outside a SSSI IRZ. No adverse effects on linkages to designated sites, and/or their qualifying features and whether the site is a GWDTE.
	Non statutory designated sites	Ancient Woodland	Encroaching upon Ancient Woodland	Within 500m of an Ancient Woodland	Over 500m from an Ancient Woodland
		National Nature Reserves (NNR)	No criteria	Encroachment upon NNR	No direct encroachment on a NNR
		Local Nature Reserves (LNR)	No criteria	Encroachment upon LNR	No direct encroachment on a LNR
	Priority habitats		Direct land take from priority habitats	Within 500m of priority habitats	Over 500m from priority habitats
Historic Environment	Statutory designated sites	Listed buildings	Direct effect on heritage sites or assets	Within 500m of heritage site or feature	Over 500m from heritage site or feature
		Scheduled monuments			
		World Heritage Sites			

SEA Topic	Dataset	Features	RAG criteria		
			Red	Amber	Green
	Non statutory designated sites	Registered Parks and Gardens and Battlefields			
Landscape	Statutory Designations	Areas of outstanding natural beauty (AONB)	No criteria	Encroachment upon or within 200m of an AONB or National Park	Over 200m from an AONB or National Park
		National Park			
Geology and soils	Agriculture land classification		No criteria	Within Grade 1 or 2 land classification	Within other or unclassified land
	Landfill sites		No criteria	Directly through Authorised Landfill Site or within 200m of an Authorised Landfill Site and/or directly through Historic Landfill Site.	Over 200m from an Authorised Landfill Site
Water	Groundwater	Groundwater Source Protection Zones	No criteria	Within Zone 1 or Zone 2	Within Zone 3
		Nitrate Vulnerable Zone	No criteria	Within a Nitrate Vulnerable Zone	Outside a Nitrate Vulnerable Zone
	Surface water	Flood risk zones	No criteria	Within Flood Risk Zone 3 or Zone 2	Within Flood Risk Zone 1
Climatic factors	Likely embodied and/or operational carbon emissions		Requires substantial new infrastructure or ongoing energy consumption.	Requires minor new infrastructure or ongoing energy consumption.	No new infrastructure or ongoing energy consumption required.

8.3 Strategic Resource Options

8.3.1 Six SROs are included in the SWW's updated dWRMP24. These are the Poole Effluent Recycling & Transfer (PERT), Mendips Quarry schemes and Cheddar 2, which is split into four options (Cheddar 2 to Summerslade, Cheddar 2 to Pasonage, Cheddar 2 to Bickham Moor, and Cheddar 2 to Prewley). These SROs are undergoing their own separate set of environmental assessments, including SEA, HRA and WFD. Preliminary environmental information is available for the SROs (from RAPID Gate 1 and early Gate 2 studies) However detailed environmental assessments for Cheddar 2 to Pasonage, Cheddar 2 to Bickham Moor and Cheddar 2 to Prewley were not yet available at the time of writing.

8.3.2 These assessments have not been duplicated within the SWW updated dWRMP24 options assessments, however the SRO environmental assessment teams have been engaged with to ensure that high-level environmental information is captured and incorporated into this SEA. Information on the SWW updated dWRMP24 SEA is also being shared with the SRO environmental assessors to ensure consistency in approach. A summary of environmental findings to date for the SROs are presented in **Section 9.9**.

8.4 Programme Appraisal

8.4.1 The programme appraisal process aims to find the 'best value' programme of supply, drought and / or demand management options, in order to secure and maintain supply-demand balance over the WRMP24 period. A range of potential options across five WRZs have been developed for the SWW updated dWRMP24, resulting in a preferred plan being selected. Further assessment on alternative plans has not been undertaken at this stage due to delays in the modelling process and a lack of information on plan alternatives. However, an assessment of the adaptive plan, which includes the options which are anticipated to be included within the plan alternatives, has been undertaken. This can be found within **Section 10.4** [63].

8.4.2 A cumulative effects assessment has been undertaken (**Section 10.3**), on the preferred plan, to identify if any of the proposed options identified as part of the plan are mutually exclusive or whether combinations of these options pose a greater adverse or beneficial effect. This assessment involved examining the likely significant effects of each of the updated dWRMP24 options individually and alongside one another. Consideration was also given to the potential for 'synergistic' effects whereby different types of impact affecting a receptor may interact together and increase their effect.

8.4.3 While the cumulative assessment has reviewed all supply, drought and / or demand options identified as part of the plan, not all options have undertaken a full SEA at the time of writing and the HLS RAG scores have been utilised to inform decisions and determine where potential effects cannot be ruled out at this stage.

8.4.4 An updated programme appraisal and cumulative effects assessment will be undertaken with the inclusion of the new options, for subsequent updates of the Environmental Report as part of the SoR and draft Final WRMP24 in December 2023.

8.4.5 It is understood that SWW will use sensitivity testing to ensure worst and best cases are assessed in respect to SEA data provided.

8.4.6 While there is no standard approach, the requirements of the UKWIR guidance have been followed during the assessment. This has been used to determine the cumulative effects and the interrelationships between options. It is important to not only consider options in isolation,

[63] An adaptive planning approach allows for long-term uncertainty in plan-making, with consideration of different preferred solutions. See Environment Agency (2020) *Long-Term Water Resources Environmental Destination*.

but also consider how the options might interact and combine generating a positive or negative effect, in order to appropriately consider all the effects of the WRMP across the SWW region, with consideration given to the potential for 'synergistic' effects whereby different types of impacts affecting a receptor may interact together and increase their effect(s). Within the WRMP24 both inter-project and intra-project cumulative effects are referred to. The definitions of these two terms are set out below.

- Inter-project effects refer to the effect of the options in combination with local planning allocations and major projects; and
- Intra-project effects refer to the compounded effect of two or more options together on a certain feature/asset. For intra cumulative effects the ESRI ArcGIS tool has been used to help identify any interactions associated across each of the options presented within preferred plans. This is through identifying links between environmental and community features/assets across each of the WRZs.

8.4.7 The aim of the assessment was to ensure that the selected options in the preferred plan do not result in any significant negative cumulative effects as a result of other nearby options and that opportunities to maximise positive effects across the plan as a whole are identified. The GIS platform was used to assess cumulative effects. Where more than one option is considered to have a residual (post mitigation) effect on a SEA Objective (positive or negative), these options are assessed against the SEA criteria to determine whether they would result in more significant effects using a geographical (spatial) and temporal approach using the following steps:

- Determine if there are any option clusters, where options are located in close proximity to one another;
- Identify any overlapping environmental receptors (community, ecological habitats, designated sites, historic assets, landscape or natural feature, waterbody or watercourse);
- Are the options anticipated to occur during any overlapping timeframes;
- Screen out receptors and options where there are no potential interrelationships between effects or temporal overlap of impacts, or where impacts are anticipated to be negligible; and
- Assess cumulative effects between remaining receptors and options. Reporting on an option by option basis (within WRZs and wider SWW region), to determine if these options pose any potential of cumulative effects.

8.4.8 Where options are identified to pose a potential for cumulative effects a narrative has been provided (**Section 10.3**), to demonstrate how this score has been determined. Where residual localised effects remain, these have been captured and noted as to why these do not pose any potential for further cumulative effects.

8.4.9 Professional judgement, following the SEA framework, is used to determine the significance of effects identified; neutral, minor, moderate or major positive or negative. A narrative explaining the significance of effects accompanies the score. In the case that further negative effects are identified, additional mitigation measures have been investigated, or alternative options explored in further detail in order to minimise any affects associated with the WRMP24.

8.4.10 For inter cumulative effects, a high level assessment has been undertaken based on the maturity of the scheme and the scale of the proposed development. A detailed review of relevant plans, programmes and/or projects such as Local Development Plans that may be undertaken in conjunction with the SWW updated dWRMP24 options and pose a significant risk of increased adverse cumulative effects have been undertaken and consideration to potential increased effects identified.

8.4.11 Due to the levels of available information and timeframes, a high level approach has been taken using professional judgements to identify any potential developments and no in-depth mapping has been undertaken at this stage.

8.4.12 Following the completion of the NCA and BNG assessment (**Annex 4: Appendix J**), BNG opportunities have been investigated and assessed to develop a plan that delivers environmental net gain. Further assessment is required to determine effects on the 29 newly identified options, which will be included as part of the assessment update December 2023. The WRMP24 also aims to support the recovery and enhancement of biodiversity according to opportunities and priorities identified in relevant Local Nature Recovery Strategies and contribute to Nature Recovery Networks, in line with the Environment Act 2021. The BNG opportunities assessment will therefore identify potential enhancements to link with and deliver gains that support Nature Recovery Networks, to help deliver environmental net gain for WRMP24.

8.5 Effects outside the SWW boundary

8.5.1 There is potential for effects outside the SWW region, for example, from transfer of water from outside the area, or from options close to the plan boundary with potential pathways affecting receptors outside the plan area. It is likely that SROs will cross boundaries. The baseline GIS database includes environmental features beyond the plan area so that additional receptors near SWW boundaries (such as designated sites) are captured and can be included in the assessments. SROs have already undergone environmental assessment through the RAPID Gate 1 / Gate 2 process and these assessments have been used to inform the SWW WRMP24 development.

8.6 Other Environmental Assessments' Methodology

Habitats Regulations Assessment

8.6.1 The HRA is a statutory requirement in its own right under the Conservation of Habitats and Species Regulations 2017, but also feeds into the SEA objective on biodiversity. The stages of HRA include the ToLS, AA (if required from the ToLS), and consideration of alternatives (if the AA finds that effects on site integrity cannot be adequately mitigated). See **Annex 2: Appendix H** for more detail.

8.6.2 As of September 2023, the HRA ToLS and Informal HRA AA have been undertaken for 35 supply options where required and presented in **Annex 2: Appendix H,** Further review and development is underway for five IoS options. At the time of writing, assessments are outstanding for 15 new supply and 14 new drought options. These outstanding assessments will be undertaken for inclusion in December 2023.

Water Framework Directive Assessment

8.6.3 The WFD assessment is a statutory requirement in its own right under the Water Environment (England and Wales) Regulations 2017, but also feeds into the SEA objective on water quality. The All Company Working Group (ACWG) developed a consistent framework for undertaking WFD assessments to demonstrate that options will not cause deterioration in status/potential of any WFD waterbodies. The assessment methodology also considers WFD future objectives to ensure the option would not preclude them from reaching good status/potential.

8.6.4 The options assessments have followed the ACWG WFD Assessment framework, which includes a Level 1 Basic Screening for Impact and a Level 2 Detailed Screening for Impact. The WFD process has been applied to the WRMP24 options in line with the ACWG guidelines. See **Annex 3: Appendix I** for more details.

8.6.5 The first stage of WFD assessment was completed for all options. Level 1 assessment followed these steps:

- Identify affected waterbodies;

- Review SRO options;
- Identify possible impacts;
- Apply 'embedded' mitigation measures; and
- Calculate screening score (using a 6-point scale) to 'screen out' waterbodies and options with no or very minor potential impacts from further assessment.

8.6.6 The second stage of WFD assessment has been completed for options that were screened in at Level 1. (**Annex 3: Appendix I**). WFD Level 2 assessment follows the steps:

- Waterbody scale detailed assessment of impacts to each WFD quality element for each activity proposed as part of an option;
- Assessment of data confidence level and design certainty – confidence levels are assigned for each assessment, based on the quality and availability of both physical data and design information about the option at the time of assessment *(note, confidence/certainty expected to be low during this initial WRMP24 assessment and increase over time).* Where the confidence levels are medium or low, the requirements for further data or design information in order to raise this confidence level for future gates will be listed*;*
- Identification of further mitigation needs;
- Assessment of impacts after mitigation (scoring on a 6-point scale); and
- Identification of activities to improve certainty of assessment outcomes.

During development of the updated dWRMP24, 29 new options were identified which are yet to undergo WFD assessments Level 1 and Level 2, due to the time constraints and availability of information. These options will undergo WFD assessments in accordance with the above methodology for inclusion in the updated Environmental Report as part of the SoR and draft final WRMP24, December 2023.

Natural Capital Assessment

8.6.7 The NCA involved defining and developing the natural capital baseline using open source data as described in NECR285 to generate a Natural Capital account of the stocks within the region. A NCA has been undertaken for each option, and the impact of each option on the Natural Capital stocks and indicators of condition has been reported quantitatively. The impact has been reported for construction and post-construction to give an estimation of the impact of the option's whole lifecycle, reported in total losses and gains.

8.6.8 The results of the change in natural capital stocks inform the assessment against the ecosystem services listed below. During the initial phase of the NCA, all of the ecosystem services listed were reviewed and scoped in or out due to the geographical or socio-economic context of the option and its zone of influence. Ecosystem services were monetised where possible. The ecosystem services used to assess the impact on natural capital included:

- Carbon sequestration (Climate regulation);
- Natural Hazard management;
- Water purification **Qualitative*;
- Water Regulation **Qualitative*;
- Biodiversity and Habitats **assessed separately through BNG (see below);
- Air pollutant removal;
- Recreation & amenity value; and
- Food production.

8.6.9 See **Annex 4: Appendix J** for further details.

During development of the dWRMP24, 29 new options were identified. Due to the time constraints and availability of information, these options haven't undergone an NCA and as such will be required to be completed for inclusion in the updated Environmental Report as part of the SoR and draft final WRMP24, December 2023.

Biodiversity Net Gain Assessment

8.6.10 BNG or net loss must be considered at both the option and programme level. Each option should look to maximise BNG, and any required mitigation should be included in the option cost. The Water Resources Planning Guideline supplementary guidance states that if there were to be a significant additional cost for an option to get significant extra benefit, this could be included as a separate option for consideration.

8.6.11 A biodiversity baseline was developed using spatial datasets of habitats inventories and assessed in line with the DEFRA BNG metric 3.1, which was used to calculate BNG change through land use of each option. The Natural Capital account was used to identify the biodiversity value of the footprint of each option prior to construction. The post-construction land use including agreed mitigation was then used to calculate the post-construction biodiversity score for each option.

8.6.12 See **Annex 4: Appendix J** for further details.

During development of the dWRMP24, 29 new options were identified. Due to the time constraints and availability of information, these options haven't undergone BNG Assessments. These assessments will be undertaken for inclusion in the updated Environmental Report as part of the SoR and draft final WRMP24, December 2023.

Invasive Non-Native Species

8.6.13 The INNS assessment is a two-stage process, with an initial screening, and a more detailed risk assessment for the options which identify potential INNS risks. The Level 1 screening methodology is based on the concept of risk as the product of the frequency and severity of INNS being transferred as the result of a water resource management option. Therefore, the methodology involves an assessor determining a Frequency of Impact and Severity of Impact which are combined to give an overall Magnitude of Risk. All options were screened at INNS Level 1.

8.6.14 The tasks in the INNS assessment include: i) identify species present, ii) identify relevant pathways, iii) identify specific source pathway receptors, iv) assessment of risks.

8.6.15 The results of the INNS assessment feed back into the SEA process under the biodiversity objective. For those assets or raw water transfer scenarios determined as high risk for the potential spread of INNS, a mitigation options appraisal has been conducted. This involves reviewing known mitigation technologies and determining their effectiveness with regard to species type, transmission pathway and feasibility. Where existing INNS assessments have been undertaken by SWW, these findings have been drawn upon as part of this process. See **Annex 5: Appendix K** for further details.

8.6.16 The Level 2 assessment methodology utilised the Strategic Resource Option (SRO) Aquatic INNS Risk Assessment Tool (SAI-RAT) developed by APEM Ltd on behalf of the Environment Agency (EA) to quantify the INNS risk associated with each option, based on the conceptual design information currently available.

8.6.17 The SAI-RAT requires a significant amount of information about options to be entered in order to assess the level of risk. As WRMP24 options are in an early stage of development, the full range of information was not available for all WRMP24 options. It is likely that a failure to complete fields in the absence of information would result in the general under-estimation of

risk. Therefore, an alternate approach was adopted for the assessment of INNS risk for non-SRO WRMP24 options. This approach takes used pre-determined default values for criteria where information is not yet available. Appropriate default 'assumed values' were agreed during a workshop in June 2022 attended by water companies undertaking INNS risk assessments for WRMP24, and assessors working on their behalf.

8.6.18 During development of the dWRMP24, 29 new options were identified. Due to the time constraints and availability of information, these options haven't undergone INNS assessments. A Level 1 and Level 2 (as required) INNS assessment(s) will be undertaken for inclusion in the updated Environmental Report as part of the SoR and draft final WRMP24, December 2023.

8.7 Influencing the development of the SWW WRMP24

8.7.1 As presented in the method sections above, the SEA and other environmental assessments are an ongoing and iterative process throughout the WRMP24 development. However, there are some key decision-points for influencing the plan:

- **WRMP24 options assessments and options design** – The detailed option assessments assess the positive and negative environmental effects of each option and identify possible mitigation and enhancement measures that have been communicated to the options design teams. Options with major or moderate negative effects will need appropriate mitigation in order for them to be taken forward. Opportunities to maximise benefits have also been considered with the design teams. The assessment criteria also informed designs as they were being developed, ensuring the rationale used for the SEA are considered upfront in the design of the options to maximise environmental benefits and minimise adverse environmental effects. This provided opportunity for the SEA process to influence the design of the options at their early stages. Where SEAs are outstanding, an HLS approach has been taken to provide an initial indication of the potential environmental risks associated with the new options.
- **WRMP24 programme development and appraisal** – the results of the environmental assessments were provided to SWW to support the selection of programme options through both modelling and metrics and SWW decision-making. These were used to help select the BVP and adaptive plan, directly using the findings of the assessments to select these programmes. Individual options within them are then reviewed and the cumulative effects assessed. Where major or moderate negative cumulative effects are identified, additional mitigation will be needed or alternative options or programmes will need to be considered. Opportunities to maximise programme-wide benefits are also considered.
- **Cumulative and in-combination effects of the preferred plan and alternatives** – appropriate plan-wide mitigation and enhancement opportunities will be developed to support overall environmental net gain. At the time of writing, the alternative plans have not been provided for assessment and as such have not been undertaken as part of the updated dWRMP24 Environmental Report, these assessments will be undertaken and included in the subsequent revision.

8.7.2 It is noted that at the time of writing, there were 29 new options (15 supply and 14 drought) that have been identified as part of the iterative WRMP24 process. Due to the time constraints and availability of information these options have yet to undergo the full environmental assessment process (SEA, HRA, WFD, INNS, BNG and NCA) as outlined above. These assessments will be completed and included within the next iteration of the Environmental Report as part of SWW SoR and Draft Final WRMP24 in December 2023. Furthermore, a review of the cumulative and in-combination effects assessment will be undertaken for the preferred plan.

Modelling Inputs

8.7.3 The outcomes of the environmental assessments have been provided to SWW for use within their modelling process, with the intention for these results to be used to help inform the BVP and alternatives (with the exception of the 29 new options). The assessment outputs were translated into metrics for modelling purposes using the approach set out below. These calculated metrics were solely used to enable incorporation of environmental findings into the BVP modelling process. They were not used for any other purpose and did not form part of the SEA process or options assessment.

8.7.4 SWW appointed KPMG to support their modelling process as part of the updated dWRMP24. The SEA and NCA data, including monetised values was provided alongside ongoing conversation regarding the utilisation of SEA data as part of the model optimisation. Due to the outstanding SEA data for the 29 new options, at the time of modelling, it has not been possible to optimise against SEA outputs as part of the model. However, it is understood that KPMG has undertaken a qualitative review in respect to the relative environmental impacts on the respective plans against the BVP metrics and SEA data. KPMG has noted that the SEA scores have not been explicitly used as part of the modelling and appraisal steps of the decision-making approach. Results of the SEA and HLSs have been provided to identify key risks associated with the proposed options, within the respective programmes. Thus enabling a qualitative approach to decision making to be taken. It is further understood that the SEA data has been used as part of the optimisation of results, so that positive and negative SEA impacts can be considered alongside the monetised impacts of the least cost programme and alternatives.

8.7.5 Where environmental assessments are yet to be completed, an HLS approach has been taken, providing a high-level overview to SWW of the potential key risks associated with the new supply and drought options. Full environmental assessments are being undertaken and will be provided to SWW.

8.7.6 The modelling included metrics for the following, which formed four separate inputs into the SWW model:

- SEA (positive and negative short-term and long-term effects);
- BNG habitat units & NCA (environmental – includes financial metrics (carbon storage, natural hazard management, air pollutant removal and food production) and also qualitative scores (water flow regulation and water purification));
- NCA (social – recreation/amenity financial metric); and
- Carbon (embodied and operational).

8.7.7 The SWW model operated with a scale of 1 – 4, such that the metrics for each of the above inputs had to be normalised to between 1 and 4 (with 1 representing the most adverse effects, and 4 the greatest positive effects).

8.7.8 It is acknowledged that by its nature, SEA (and NCA water regulation and water purification) does not include numerical values for scoring effects. However, in order to incorporate environmental considerations directly into the SWW modelling for selection of the preferred plan, SEA metrics were developed to summarise the environmental performance of each option in numerical form. These metrics were generated solely for the programme-level modelling, which was used in combination with further reviews and selection by SWW.

8.7.9 It is noted that the results of the HRA and WFD assessments fed into other SEA objectives including biodiversity and water, and will have contributed to those metrics. Additionally, while there is consideration of carbon within the climatic factors SEA objective, this objective also assessed climate change effects and resilience. This objective has therefore been retained in

the SEA modelling metrics so that climate change and resilience are not excluded from the modelling, in addition to the separate total carbon metric.

8.7.10 SEA, BNG, NCA and carbon data relating to the updated dWRMP24 supply and demand options were analysed to provide each scheme with four metrics. A summary of the process for calculating the four metrics is provided below:

SEA

8.7.11 For all options, positive and negative effects were allocated a numerical score according to the following scale[64]:

- +/-1 for positive/negative minor residual effects;
- +/-4 for positive/negative moderate residual effects; and
- +/-8 for positive/negative major residual effects.

8.7.12 These values were applied to construction and operational effects for each option, in order to convert the effects to a numeric value for modelling inputs. For each option, four categories of SEA data were processed, which were:

- Short term (construction) positive: The sum of all short term positive scores;
- Long term (operation) positive: The sum of all long term positive scores;
- Short term (construction) negative: The sum of all short term negative scores; and
- Long term (operation) negative: The sum of all long term negative scores.

8.7.13 As part of the dWRMP24, December 2022, the four categories were normalised with respect to values across all of the SEA categories to allow input to the SWW model, with the lowest value receiving a 1 and the largest receiving a 4. For each scheme, the four values across the categories were then averaged. This averaged list was then normalised again with the smallest receiving a 1 and the largest receiving a 4, to enable differentiation between values in the model. This produced a single metric for each option for input into the SWW preferred plan modelling.

8.7.14 The modelling approach has been developed to allow input of positive and negative SEA modelling values separately for each option, for both short and long term. To enable the SEA findings to better reflect the construction and operational effects, and avoiding cancelling out of positive and negative effects*.[Note as part of KPMGs Modelling optimisation, is it understood that the positive scores are combined and the negative scores combined respectively in a consistent approach with other trends across the model. Allowing the total score for an option to reflect the original weightings (+/- 1, 4 and 8) and thus the significance of the impact of an option over its life (construction and operation)].*

BNG & NCA (environmental)

8.7.15 This metric comprised of three separate elements. These were:

- BNG data in numeric format (habitat units);
- NCA environmental financial metrics for carbon storage, natural hazard management, air pollutant removal and food production (£); and
- NCA qualitative effects for water flow regulation and water purification.

8.7.16 For the BNG element, the total net unit change in habitat value was normalised between 1 and 4 for each option, with the highest value receiving a 4 and the lowest receiving a 1.

[64] Values selected to align with modelling undertaken by Mott MacDonald for other water companies and regions.

8.7.17 The environmental financial NCA data was already a numeric metric (£). This was also normalised between 1 and 4 for each option, with the highest value receiving a 4 and the lowest receiving a 1.

8.7.18 NCA water purification and water regulation were in a qualitative format, and used the assessment scale from the SEA framework. The water purification and water regulation effects were therefore converted to a numeric value for modelling purposes. The same numerical scoring conversion as for the SEA was applied to water purification and water regulation to produce a value for each option (i.e. +/-1 for positive/negative minor effects; +/-4 for positive/negative moderate effects; and +/-8 for positive/negative major effects).

8.7.19 The list of values for BNG, NCA environmental financial metrics, and NCA qualitative data (water purification and water regulation) for each option were normalised between 1 and 4 with the highest receiving a 4 and the lowest receiving a 1. Any schemes missing data were assigned the average of the list of normalised values (these were identified in the metrics). This was to ensure that options which were scoped out of the BNG and/or NCA assessments were not unduly disadvantaged in the preferred plan modelling. These three elements were then averaged to produce a single NCA environmental metric for each option for input into the model.

NCA (social)

8.7.20 This metric solely included the NCA recreation and amenity financial metric. This was in numerical format (£). As above, the list of values for all options was normalised between 1 and 4, with the highest receiving a 4 and the lowest receiving a 1. Any options missing data were assigned the average of the list of normalised values.

Carbon

8.7.21 Carbon data was already in numeric format (tCO_2). For each option, assuming a 60 year design life, the total operational carbon over that period was added to the embodied carbon to obtain a total carbon value in tCO_2. The totals for each option were normalised between 1 and 4, with the lowest total carbon receiving a 4 and the highest receiving a 1. Any schemes missing carbon data were assigned the average of the list of normalised values. This was to ensure that options with missing data were not unduly disadvantaged in the modelling scores. It is anticipated that any missing data will be available for future updates of the model and preferred plan.

8.8 Difficulties and Uncertainties

8.8.1 A number of constraints were encountered during the environmental assessments. These include:

- GIS information for the options was not available directly from the SWW design team, therefore the options were digitised in collaboration with SWW. It is noted that these may not reflect the final option location for some options;
- Environmental Assessment including SEA, WFD Level 1 and Level 2 assessments, BNG assessments and NCA, INNS screening and risk assessments have been undertaken for 40 supply options and 15 demand option scenarios where feasible to support the WRMP24 development and used to inform the SEA findings. HRA ToLS and AA have been undertaken for options as listed above with the exception of IoS WRZ which require further detailed review at the time of writing. Please refer to the Technical Notes in **Annex 2 - 5: Appendices H - K** for additional limitations and assumptions for those studies;
- A further 15 supply and 14 drought options have been identified as part of the WRMP development. Due to the varying levels of option development and time constraints, these options haven't been assessed as part of the updated dWRMP24. HLS have been undertaken to provide an early indication of potential risks using a RAG rating; and

- The proposed alternative plans haven't been assessed as part of the updated dWRMP24 update within the Environmental Report due to time constraints and availability of data. As such cumulative assessments haven't been undertaken as part of the Environmental Report and will be included in subsequent updates.

9 Assessment of Updated dWRMP24 Options

9.1 Introduction

9.1.1 As outlined in **Chapter 8**, a two-stage process was undertaken to determine the environmental effects of the options presented within the updated dWRMP24. As part of this, an options level SEA assessment was undertaken for the 40 supply-side options and 15 demand options. These are presented within **Annex 6: Appendices L - Q**.

9.1.2 Summaries for each WRZ and the demand options are presented below. **Table 8.1** and **Annex 1: Appendix E** provide the scoring system and key for the assessment of these options.

9.1.3 An HLS approach has been undertaken on the 29 new options identified more recently during the WRMP development, the outcomes of the HLSs is presented below in **Section 9.8.**

9.2 Bournemouth WRZ

9.2.1 The Bournemouth WRZ supply options comprise:

- **BNW1**: Lymington groundwater source development and remedial works – Borehole development, existing borehole remedial works;
- **BNW3**: Wimborne transfer to Longham – Transfer of the current Wimbleball groundwater licence to the Longham licence on the Stour;
- **BNW6**: South Dorset Aquifer Recovery Scheme – ASR at Longham. Pumped abstraction from aquifer in summer months. Pumping and recharge into aquifer during winter months for subsequent abstraction; and

  BNW14: New raw water supply and new onsite treatment – Deliver abstracted water from Ibsley Lake to Knapp Mill for treatment.

9.2.2 The above options have been assessed against the SEA objectives, using the assessment criteria guide questions (see **Section 7.2)** and scoring definitions (see **Annex 1: Appendix E**) to determine the expected nature and scale of effects.

9.2.3 A summary of the effects identified when assessing the options against each objective is presented in **Table 9.1**, and discussed in the following section. Short-term (ST) construction effects and long-term (LT) operational effects are summarised separately due to the differing nature of effects.

9.2.4 A new option, BNW17 Cheddar Two New Strategic Regional Reservoir and Transfer, has been identified as an additional option or potential SRO, however this has not yet been confirmed by SWW. This option builds upon the concept design that has been developed for the Cheddar 2 reservoir and transfer SRO Gate 2 submission to RAPID and is expected to be included in future iterations of this Environmental Report.

9.2.5 The two confirmed SROs (BNW7 and BNW8) are undergoing a separate assessment process. Preliminary findings of their sustainability effects are summarised below in **Section 9.9.**

Table 9.1: Bournemouth WRZ Summary of SEA Findings

Option Ref	ST / LT	SEA Topics															
		Biodiversity			Water			Soil	Air	Climate		Hist. Env	Landscape	Population and Health		Material assets	
		1.1	1.2	1.3	2.1	2.2	2.3	3	4	5.1	5.2	6	7	8.1	8.2	9.1	9.2
BNW 1	ST	-	-	0	0	0	0	-	-	-	0	0	-	0	0	-	0
	LT	---	--	0	--	0	- +	0	0	0	+	0	0	+	0	-	0
BNW 3	ST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LT	--	-	0	--	+	+	0	0	-	+	0	0	0	-	0	0
BNW 6	ST	-	-	-	-	-	0	-	-	0	0	0	0	-	++ +	-	-	0
	LT	- +	- +	-	-	- +	++	0	-	0	+	0	0	+		-	-	-
BNW7	ST	Information not currently available for assessment – possible SRO															
	LT																
BNW8	ST	Information not currently available for assessment – possible SRO															
	LT																
BNW14	ST	-	--	-	--	-	0	-	-	--	0	-	-	- +		-	-	-
	LT	---	--	0	--	+	++	-	-	-	+	0	0	0		0	-	0
BNW17	ST	Information not currently available for assessment – possible SRO															
	LT																

BNW short-term (construction) effects

9.2.6 One major positive short-term (construction) effect has been identified for Bournemouth WRZ. This is for BNW6 in relation to the population and human health objective (8.1) to "*maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing*". This effect is anticipated due to the very substantial capital costs required for delivering the option, which could lead to significant benefits to the economy during construction.

9.2.7 There have been no moderate positive short-term effects identified for options within Bournemouth WRZ.

9.2.8 One minor positive short-term effect has been identified for Bournemouth WRZ, for BNW14 in relation to the population and health objective (8.1). This is predominantly caused by the very substantial cost of the option, with expected economic benefits. These include potential employment opportunities and local materials and resources supply chain opportunities.

9.2.9 Potential moderate negative short-term effects have been identified for BNW14 for the biodiversity objective (1.2) to "*protect, conserve and enhance biodiversity, including priority species, vulnerable habitats and habitat connectivity*". These potential negative effects are attributed to the option's direct encroachment upon priority habitats, GWDTEs, Important Bird Areas and woodland. The option is also anticipated to result in habitat removal and disturbance effects.

9.2.10 Potential moderate negative short-term effects have been identified for BNW14 in relation to the water objective (2.1) to "*Protect and enhance the quality of the water environment and water resources*". This is predominantly caused by the potential for widespread and prolonged effects on WFD groundwater bodies, with possible deterioration between status classes.

9.2.11 Potential moderate negative short-term effects have been identified for BNW14 for the climate objective (5.1) to "*reduce embodied carbon emissions*". This is largely due to the total embodied carbon from construction and the associated carbon emissions from machinery and vehicles. Whereas all options are anticipated to have a neutral short-term effect in relation to the climate objective (5.2) to "*reduce vulnerability to climate change risks and hazards*", likely as a result of the negligible effects of short-term construction emissions of plant and/or pipeline infrastructure.

9.2.12 Potential minor negative short-term effects have been identified for all options, except for Option BNW3, in relation to the biodiversity objective (1.1) to "*Protect and enhance designated and non-designated ecological sites*". These negative effects are anticipated due to options causing disturbance to qualifying features, and the ecological sensitivity of nearby designated and non-designated sites.

9.2.13 Potential minor negative short-term effects have been identified for all options, except for Option BNW3, in relation to the soil objective to "*protect and enhance the functionality, quantity and quality of soils, including the protection of sites of geological importance*". These negative effects relate to the nature of the construction works for all options, which creates the potential for contamination to soil from accidental mechanical oil leaks and spillage of fuels and chemicals related to these activities.

9.2.14 Potential minor negative short-term effects have been identified for all options, except for Option BNW3, for the air quality objective to "*reduce and minimise air emissions".* These minor negative short-term effects were identified due to the potential for dust and pollutant release from construction plant and vehicles.

9.2.15 Potential minor negative short-term effects have been identified for all options, except for Option BNW3, in relation to the material assets objective (9.1) "*to minimise resource use and waste*

production". This is due to likely energy consumption during the construction phase and the use of new resources and materials.

9.2.16 Potential neutral short-term effects have been identified for all options in relation to the water objective (2.3) to "*deliver reliable and resilient water supplies*". This is anticipated due to the likelihood that water supply would not be affected during construction.

9.2.17 There have been no major negative short-term effects identified for options within the Bournemouth WRZ.

BNW long-term (operational) effects

9.2.18 There have been no major positive long-term (operational) effects identified for options within the Bournemouth WRZ.

9.2.19 Two options, BNW6 and BNW14, have been identified as having potential moderate positive long-term effects in relation to water objective (2.3) to "*deliver reliable and resilient water supplies*". This is entirely due to the options providing additional water supplies to the Bournemouth region.

9.2.20 One potential minor positive long-term effect has been identified for the Bournemouth WRZ for BNW6, in relation to the biodiversity objective (1.1) to "*protect and enhance designated and non-designated ecological sites*". This option could result in the recharging of the aquifer, leading to positive effects on GWDTEs.

9.2.21 One potential minor positive long-term effect has been identified for option BNW6 in relation to the biodiversity objective (1.2) to "*protect, conserve and enhance biodiversity, including priority species, vulnerable habitats and habitat connectivity*". The potential for groundwater and discharge back into rivers is expected to enhance GWDTEs.

9.2.22 Potential minor positive long-term effects were identified for options BNW3, BNW6 and BNW14 in relation to the water objective (2.2) to "*increase resilience and reduce flood risk*". These potential effects are predominately identified due to the scale of abstraction proposed for some options resulting in positive effects in relation to groundwater flooding, and some options reducing overland flows and run-off.

9.2.23 Potential minor positive long-term effects were identified for options BNW1 and BNW3 in relation to the water objective (2.3) due to the options seeking to provide additional water resources to the region.

9.2.24 Potential minor positive long-term effects were identified for options BNW1, BNW3, BNW6 and BNW14 in relation to the climate objective (5.2) related to "*reducing vulnerability to climate change risks and hazards*". This is expected due to appropriately monitored abstractions having the potential for positive effects on climate resilience, particularly in periods of low rainfall.

9.2.25 Potential minor positive long-term effects were identified for options BNW1 and BNW6 in relation to the population and human health objective (8.1) "*Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing*". Positive effects are anticipated due to moderate operational costs leading to economic and employment benefits.

9.2.26 Two options, BNW1 and BNW14, have been identified as having potential major negative long-term effects in relation to the biodiversity objective (1.1). This is expected due to additional groundwater abstraction affecting qualifying features in multiple designated ecological sites. There is also potential for permanent habitat removal associated with BNW14.

9.2.27 Potential moderate negative long-term effects have been identified for option BNW3 which relates to the biodiversity objective (1.1). Potential effects are in relation to additional abstraction causing reduced groundwater levels and negative effects to qualify species and ecological sites.

9.2.28 Additional groundwater abstraction has also led to potential moderate negative long-term effects for options BNW1 and BNW14, relating to the biodiversity objective (1.2). Increased abstraction could lead to negative effects on nearby GWDTEs.

9.2.29 Potential moderate negative long-term effects have been identified for options BNW1, BNW3 and BNW14 relating to the water objective (2.1) "*Protect and enhance the quality of the water environment and water resources*". This is predominantly due to additional groundwater abstraction causing decreases in groundwater quality, with possible reductions in WFD status.

9.2.30 Various potential minor negative long-term effects have been identified across all BNW options. The potential effects for BNW6 and BNW14 in relation to the air quality objective to "*reduce and minimise air emissions*", are anticipated due to infrastructure such as WTWs operation leading to a potential increase in air emissions.

9.2.31 Potential minor negative long-term effects have been identified for BNW3 and BNW14 in relation to the climate objective (5.1) "*to reduce embodied and operational carbon emissions*". These potential effects are anticipated as a result of additional treatment and/or pumping, which could lead to an increase in energy use and carbon emissions.

9.2.32 Potential minor negative long-term effects have also been identified for all options except BNW3 regarding the material assets objective (9.1) "*to minimise resource use and waste production*", in response to the potential for an increase in energy consumption to accommodate the additional treatment, abstraction and/or pumping of water.

9.2.33 Potential neutral long-term effects have been identified for all options for the historic environment objective "*to conserve, protect and enhance the historic environment, including archaeology*". These effects have been identified due to the options either being located within existing water treatment sites or due to the nature of the proposed works being unlikely to affect the enhancement or enjoyment of heritage assets and their settings.

9.2.34 All options have been identified as having the potential for neutral long-term effects for the material assets objective (9.2) to "*avoid negative effects on built assets and infrastructure*", with the exception of BNW6, which was assessed as minor negative, due to the potential risk of soil heave from aquifer recharge on existing built infrastructure. The neutral long-term effects are largely anticipated as the options are expected to be located within existing water treatment sites or would utilise existing infrastructure.

9.2.35 Potential neutral long-term effects have been identified for all options in relation to the soil objective "*to protect and enhance the functionality, quantity and quality of soils, including the protection of sites of geological importance*", with the exception of BNW14. This was assessed as minor negative due to permanent land take and potential soil destabilisation. Neutral long-terms effects on soil resources are likely due to the location of the options which occupy previously disturbed land and also due to the implementation of best practice measures, including soil reinstatement upon operation.

9.3 Colliford WRZ

9.3.1 The Colliford WRZ supply options comprise:

- **COL2:** Colliford Pumped Storage Stage 2 – Lower River Camel Abstraction - New abstraction licence. New river intake and pumping station at Nanstallon. A new pipeline to transfer raw water at a rate of 90Ml/d. 7.94km of pipeline from the intake to Restormel WTW.

Potential for upgrading existing Restormel WTW to approximately 150Ml/d. Raw water is then pumped to Colliford Reservoir via existing main.

- **COL2:** Colliford PS Stage 2 - River Camel Abstraction
- **COL3:** Abstraction of Colliford Reservoir compensation flows when making supply releases.
- **COL4:** Abstraction of Siblyblack Reservoir compensation flows when making supply releases.
- **COL5:** Changes to River Cober Wendron and Stithians Reservoir abstraction licences – Increase Wendron annual licence and de couple from Stithians. Upgrades to Trenear Pumping Station.
- **COL6:** River Hayle new surface water abstraction (up to 2Ml/d) – Abstraction from River Hayle at existing disused intake, treat abstracted water at new package plant treatment works. New pumping station at St. Erth and potentially new raw water pipeline needed.
- **COL9:** Abstraction from Leswidden Pool – Transfer of raw water from Balleswidden Pool for eventual use at Drift WTW. Abstracted water will be transferred via Sancreed Stream. New raw water pipeline (1.5km) from Balleswidden Pool to Sancreed Stream. Water will be treated at Drift WTW.
- **COL15:** Increase Restermol WTW capacity to 110Ml/d – Increasing existing abstraction at Restormel WTW from 93Ml/d to 110Ml/d. This would enable more effective use to be made of Colliford/ River Fowey resources system. Upgrades to intake structure, screening, pipework, pumps and pumping station required.
- **COL19:** Re-introduce abstractions at Boswyn Stream/ Cargenwen Reservoir/ Carwynnen Stream. New WTW at Boswyn.
- **COL20:** New River Fal surface water abstraction (approximate yield of 25Ml/d) – New abstraction on the River Fal at Grampound. New intake, new pumping station and onsite WTW and connection to distribution system via new pipeline.
- **COL21:** Alternative RWS from Cornish Metals at Crofty – treatment of effluent from high density sludge plants to reach a suitable quality to then be discharged into the Stithians reservoir.
- **COL29:** Restormel WTW capacity increase – increasing existing abstraction at Restormel WTW from 93Ml/d to 120Ml/d. Upgrades to intake structure, screening, pumps and pipework.

9.3.2 The above options have been assessed against the SEA objectives, using the assessment criteria guide questions (see **Section 7.2**) and scoring definitions (see **Annex 1: Appendix E**) to determine the expected nature and scale of effects.

9.3.3 A summary of the effects against each objective is presented in **Table 9.2**, and discussed in this section. Short-term (ST) construction effects and long-term (LT) operational effects are summarised separately due to the differing nature of effects.

Table 9.2: Colliford WRZ Summary of SEA Findings

Option Ref	ST / LT	SEA Topics																
		Biodiversity			Water			Soil	Air	Climate		Hist. Env	Landscape	Population and Health		Material assets		
		1.1	1.2	1.3	2.1	2.2	2.3	3	4	5.1	5.2	6	7	8.1	8.2	9.1	9.2	
COL 2	ST	-	-	-	-	-	0	0	0	- -	+	0	-	-	-	+ +	-	-	-	
	LT	---	-	+	-	--	-	+	0	0	-	-	0	0	+		-	-	0	
COL 3	ST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	LT	-	-	0	--	+	+	0	0	0	-	+	0	0	0	-	0	0		
COL 4	ST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	LT	-	-	0	--	0	+	0	0	-	-	0	0	0	-	0	0			
COL 5	ST	0	0	-	0	-	0	-	-	0	0	-	-	-	+	0	-	0		
	LT	-	-	0	--	0	+	0	0	0	-	0	0	+		-	-	0		
COL 6	ST	-	-	-	-	-	0	-	-	-	0	0	-	-	+	-	-	-		
	LT	-	-	+	-	--	-	+	-	0	0	+	-	0	-	+		-	0	0
COL 9	ST	--	-	-	-	0	0	-	-	-	0	--	-	-	+	0	-	-		
	LT	--	-	--	--	-	+	0	0	0	0	0	-	+		0	0	0		
COL 15	ST	-	-	0	0	-	-	0	-	--	0	-	-	-	+	-	-	0		
	LT	-	-	0	-	0	+	0	0	-	-	+	0	0	+		-	-	0	
COL 19	ST	-	---	-	-	0	0	0	-	--	0	-	0	-	+	0	-	+	0	
	LT	-	-	-	--	0	+	0	0	0	-	-	0	+		-	0	0		
COL 20	ST	-	--	-	-	-	0	-	-	--	0	-	-	-	++	-	-	-		
	LT	--	--	-	--	+	-	+	0	-	--	-	+	0	-	+		-	-	0
COL 21	ST	-	-	-	-	-	-	-	-	---	0	-	-	-	++	-	-	-		
	LT	0	0	0	- -	+	0	++	0	-	--	0	0	0	-	+	0	-	0	
	ST	-	-	0	0	-	-	0	-	--	0	-	-	-	+	-	-	0		

Option Ref	ST / LT	SEA Topics															
		Biodiversity			Water			Soil	Air	Climate		Hist. Env	Landscape	Population and Health		Material assets	
		1.1	1.2	1.3	2.1	2.2	2.3	3	4	5.1	5.2	6	7	8.1	8.2	9.1	9.2
COL 29	LT	-	-	0	-	0	+	0	0	-	-	+	0	0	+	-	-	0

COL short-term (construction) effects

9.3.4 No major positive short-term (construction) effects have been identified for the 14 options within Colliford WRZ.

9.3.5 Potential moderate positive short-term effects have been identified for COL2, COL20 and COL21 in relation to the population and human health objective (8.1) to "*maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing".* This is due to moderate OPEX costs leading to job creation and benefits to the local economy.

9.3.6 A potential minor positive short-term effect has been identified for COL2 in relation to the climate objective (5.1) "*Reduce embodied carbon emissions*". This is anticipated due to the potential for pipeline optimisation, which could enhance the overall carbon efficiency of the option.

9.3.7 A potential minor positive short-term effect has been identified for COL15, COL5, COL9, COL19, COL29 and COL6 in relation to the population and health objective (8.1). This has been identified as a potential minor short-term effect due to the substantial economic costs of the option, which could result in potential job creation as well as resource and supply chain positive impacts on the local community.

9.3.8 A potential minor positive short-term effect has been identified for COL19 in relation to the material asset objective (9.1) "*Minimise resource use and waste production*", due to the recommissioning of existing infrastructure.

9.3.9 A major negative short-term effect has been identified for COL19 in relation to the biodiversity objective (1.2) "*Protect, conserve and enhance biodiversity, including priority species, vulnerable habitats and habitat connectivity*". This is expected because the option directly encroaches and is within close proximity to multiple priority habitats. Direct land take from deciduous woodland is expected.

9.3.10 A major negative short-term effect has been identified for COL21 in relation to the climate objective (5.1). The option will involve new infrastructure, with embodied carbon exceeding 12,000tCO_2 equivalent per annum under a worst-case scenario.

9.3.11 A potential moderate negative short-term effect has been identified for COL9 in relation to the biodiversity objective (1.1) "*Protect and enhance designated and non-designated ecological sites*", due to the close proximity of sensitive ecological sites and potential for disturbance effects to qualifying features.

9.3.12 Potential moderate negative short-term effects have been identified for option COL20 in terms of the biodiversity objective (1.2). Potential moderate negative short-term effects on this objective have been identified for COL 20 as a result of the potential for direct encroachment, and therefore likely permanent loss, of areas within Lamorran Wood and Ruan Lanihorne Ancient Woodland.

9.3.13 Potential moderate negative short-term effects have been identified for COL2, COL15, COL19, COL20 and COL29 in relation to the climatic factors objective (5.1). These effects predominantly relate to the potential for the option to require the use of activities to increase the maximum abstraction, which may involve the use of energy dependent machinery. The embodied carbon emissions (total embodied carbon from construction) for options COL2, COL15, COL19, COL20 and COL29 are predicted to be over 1,000 tCO_2 equivalent.

9.3.14 A potential moderate negative short-term effect has been identified for COL9 in terms of the historic environment objective to "*conserve, protect and enhance the historic environment, including archaeology*". This is due to the option being located within a World Heritage Site and its close proximity to Scheduled Monuments and a Listed Building.

9.3.15 Options COL2, COL6 and COL21 are identified as having the potential for minor negative short-term effects for all biodiversity objectives due to the options requiring direct river abstractions and/or are located adjacent or nearby to designated sites, including SSSIs, SACs and SPAs. Potential minor negative short-term effects were identified for all options, for at least one biodiversity objective, with the exception of options COL3 and COL4 which have the potential for neutral short-term effects in relation to all biodiversity objectives.

9.3.16 All options apart from COL3 and COL4 are identified as having the potential for minor negative short-term effects on at least one of the water objectives (COL 2.1-2.3). These effects are mostly anticipated due to the potential for pollutants to enter watercourses during construction, particularly for those options located within a Drinking Water Protected Area.

9.3.17 Potential minor negative effects have been identified for all options apart from COL2, COL3 and COL4 for objective (4) "*Reduce and minimise air emissions*" likely due to increased construction traffic and construction activities generating dust and emissions.

9.3.18 Potential minor negative effects have been identified for options COL6 and COL9 in relation to climate objective (5.1) "*Reduce embodied and operational carbon emissions",* due to the embodied carbon associated with the construction of these options.

9.3.19 Options COL2, COL6, COL15, COL20, COL21 and COL29 were assessed as having potential minor negative short-term effects for both population and human health objectives, likely due to disruption to road users, access issues and effects related to construction traffic movements, such as increased dust, noise and vibration.

9.3.20 Potential neutral short-term effects have been identified for all options apart from COL5, COL6, COL9, COL20 and COL21 which scored minor negative for the soil objective "*Protect and enhance the functionality, quantity and quality of soils, including the protection of sites of geological importance*". The potential neural short-term effects are due to some options not requiring physical construction works and/or best practice mitigation measures being recommended for implementation during construction.

9.3.21 Potential neutral short-term effects were identified for the historic environment objective for COL3, COL4 and COL6. The neutral short-term effects are likely due to some options not requiring physical construction works, or the implementation of best practice mitigation measures and additional baseline collection and assessment, being recommended for options with construction works.

9.3.22 Many options were assessed as having potential neutral short-term effects for at least one of the material assets objectives, with the exception of COL2, COL6, COL9, COL20 and COL21, which were all assessed as potential minor negative. The potential for neutral short-term effects were primarily caused by some options as they do not require physical construction works, and recommended mitigation such as investigating the use of renewable energy sources for options involving water treatment works and pumping stations.

9.3.23 Options that were assessed as having potential neutral short-term effects on the landscape objective, "*conserve, protect and enhance landscape, townscape and seascape character and visual amenity*", including COL3, COL4 and COL19, do so as they do not require construction of infrastructure, and are therefore unlikely to affect any landscape receptors. The remaining options, however have potential to result in minor negative effects.

COL long-term (operational) effects

9.3.24 There have been no potential major positive long-term (operational) effects identified for options within the Colliford WRZ.

9.3.25 A potential moderate positive long-term effect has been identified for option COL21 against the water objective (2.3) to "*deliver reliable and resilient water supplies*", due to the option providing an additional water for use within the SWW region.

9.3.26 Potential minor positive long-term effects have been identified in relation to the biodiversity objective (1.2) "*Protect, conserve and enhance biodiversity, including priority species, vulnerable habitats and habitat connectivity*" for options COL2 and COL6. Potential benefits are anticipated due to the options resulting in potential river flow augmentation and ecological restoration.

9.3.27 Potential minor positive long-term effects have been identified for the water objective (2.2) "*Increase resilience and reduce flood risk*", for options COL3 and COL20. This is because the options are expected to alleviate flood risk and improve flood risk management.

9.3.28 Potential minor positive long-term effects have been identified for the water objective (2.3) for all options, except from COL21. Minor positive effects are anticipated due to the options providing additional water for use within the SWW region.

9.3.29 A potential minor positive long-term effect has been identified for the climatic factors objective (5.2) in relation to "*reducing vulnerability to climate change risk and hazards*" for COL3, COL6, COL15, COL20 and COL29, due to the option likely increasing catchment resilience to drought by increasing water availability to the local population.

9.3.30 Potential minor positive long-term effects have been identified for the population and human health objective 8.1 to "*maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing*". This is for all options within the Colliford WRZ with the exception of COL3 and COL4, due to a proposed increase in water availability across the area to support human health and wellbeing.

9.3.31 A potential major negative long-term effect has been identified for option COL2 in relation to objective (1.1) "*Protect and enhance designated and non-designated ecological sites*", associated with potential effects on the River Camel SAC. Moderate adverse effects for this objective have also been identified for option COL9 and COL20, due to moderate adverse effects on ecological sites.

9.3.32 Moderate adverse effects have also been identified for objective (1.2) "*Protect, conserve and enhance biodiversity, including priority species, vulnerable habitats and habitat connectivity*" in relation to COL20 due to the significant new infrastructure associated with these options.

9.3.33 COL9 has further been identified as having moderate adverse effects on objective (1.3) "*Reduce the spread or presence of INNS*" due to the INNS risk that the transfer of water poses.

9.3.34 Moderate negative effects have been identified for objective (2.1) "*Protect and enhance the quality of the water environment and water resources"* for all options apart from COL15 and COL29. This is due to increased abstractions having the potential to affect groundwater or WFD bodies if over abstraction occurs and negative effects such as the lowering of the water table. COL18 has also been identified as having potential for moderate adverse effects on objective (2.2) "*Increase resilience and reduce flood risk*" due to part of the option being located within flood zone 2 and 3.

9.3.35 Options COL20 and COL21 have been identified as having potential for moderate adverse effects on objective (5.1) "*Reduce embodied and operational carbon emissions*", due to the high operational carbon emissions associated with these options.

9.3.36 Further to the above, all options apart from COL21 have been identified as having minor negative effects on biodiversity objectives, apart from COL21, which scored neutral across these objectives.

9.3.37 Minor negative effects have been identified for objective (2.1) "*Protect and enhance the quality of the water environment and water resources"* in relation to options COL15 and COL29. Furthermore, minor negative effects have also been identified for water objective (2.2) "*Increase resilience and reduce flood risk*" in relation to COL2, COL6 and COL9. Finally, a minor negative effect has also been identified for water objective (2.3) "*Deliver reliable and resilient water supplies*" in relation to COL20, due to the potential for water quality deterioration further downstream from the option.

9.3.38 A minor negative effect has been identified for option COL21 for objective (8.1) "*Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing*" due to the potential for ongoing disturbance associated with operational noise. For objective (8.2) "*Maintain and enhance tourism and recreation*" all options apart from COL9 and COL21 (which all scored neutral) were assessed as having potential for minor negative effects. This is due to the potential loss of recreational space, or changes to downstream water quality and/or quantity.

9.3.39 Potential neutral long-term effects were identified for both soil and air objectives "*Protect and enhance the functionality, quantity and quality of soils, including the protection of sites of geological importance*" and "*Reduce and minimise air emissions*". This is for all options, with the exception of COL6, COL20 and COL21 which have at least one minor negative long-term effect. The neutral effects are mainly due to some options not requiring physical construction works, the recommendation that ground will be reinstated post-construction and the low-quality grade of soil present at some option sites.

9.3.40 Potential neutral long-term effects were identified for the historic environment objective "*conserve, protect and enhance the historic environment, including archaeology*" for all options, with the exception of COL19, which have the potential to cause residual effects on historic assets and Registered Common Land hence reducing the public access and the local significance within the local area. Neutral effects are anticipated due to some options not requiring physical construction works and other options being unlikely to have any significant effect, enhancement or improvement on public access and/or enjoyment to heritage assets.

9.3.41 Most options were identified as having potential for neutral long-term effects on the landscape objective, "*conserve, protect and enhance landscape, townscape and seascape character and visual amenity*", with the exception of COL6, COL9 and COL20, which were assessed as having potential for minor negative effects, due to the options being situated within Historic National Landscape Character Areas with areas of enclosed Agricultural Land and fields therefore there is the potential for long term visual impacts as a result of new above ground infrastructure. The neutral long-term effects were due to the options requiring no physical construction works, utilising existing infrastructure, or any effects on visual amenity were expected to be negligible.

9.3.42 Many options were assessed as having potential neutral long-term effects for at least one of the material assets objectives. Potential neutral long-term effects were largely as a result of options utilising existing infrastructure as well as options being located away from built environments and/or involving underground structures only.

9.4 Roadford WRZ

9.4.1 The Roadford WRZ supply options comprise:

- **ROA2:** River Erme re-location of surface water abstraction – New direct river abstraction of the River Erme, and new pumping station, reception shaft and additional pipework. Two possible locations have been proposed. New abstraction licence required.

- **ROA3:** River Yealm re-location – Intake relocation on River Yealm, new pumping station, and new reception shaft. Additional pipeline required to connect new intake point with existing South Devon Spine Main pipe network. New abstraction licence required.

  ROA4: Abstraction of Roadford compensation flow at Gunnislake when making supply releases.
- **ROA6:** Increasing Upper Tamar Lake annual licensed volume so it reaches 9.1Ml/d (licence daily maximum) – Increasing daily abstraction limit, upgrades to Tamar Lakes WTW and distribution network.
- **ROA7:** Upgrades and expansion of Northcombe WTW to 60Ml/d – Treatment works to be able to deliver a minimum of 60Ml/d. This would be covered under the current abstraction licence.
- **ROA12:** Re-introduce Slade Reservoir and install additional treatment at Horedown WTW – Installation of new pumping station at Slade reservoir and new 4Ml/d GAC plant at Horedown WTW. New pipework required, with multiple options for the pipeline route.
- **ROA13:** Duckeraller and Vennbridge – changes to licences, additional pumping and treatment to enable full use – Changes to abstraction licences and 4Ml/d nitrate removal plant installation at Burrows WTW to facilitate full use of sources.
- **ROA14:** Raise Avon Dam – Raise Avon Dam by 4m and increase reservoir size by 50m from current reservoir edge. Subject to structural engineering approval.
- **ROA15:** Roadford Reservoir Winter Pump Storage – Gatherley Phase 2 – Pipeline from abstraction point in River Lyd to Roadford Reservoir. Completion of scheme to allow the full 148Ml/d to be transferred to Roadford Reservoir. Dual main required between River Lyd and Roadford Reservoir.
- **ROA17:** Littlehempston WTW – Increase water offsite to licence maximum, offsite high lift pumping and main capacity. Involves the dualling of trunk main pipelines.

9.4.2 The above options have been assessed against the SEA objectives, using the assessment criteria guide questions (see **Section7.2)** and scoring definitions (see **Annex 1: Appendix E**) to determine the expected nature and scale of effects.

9.4.3 A summary of the effects against each Objective is presented in below in **Table 9.3**, and discussed in the following section. Short-term (ST) construction effects and long-term (LT) operational effects are summarised separately due to the differing nature of effects.

Table 9.3: Roadford WRZ Summary of SEA Findings

Option Ref	ST / LT	SEA Topics															
		Biodiversity			Water			Soil	Air	Climate		Hist. Env	Landscape	Population and Health		Material assets	
		1.1	1.2	1.3	2.1	2.2	2.3	3	4	5.1	5.2	6	7	8.1	8.2	9.1	9.2
ROA 2	ST	--	--	-	-	--	-	-	-	-	0	0	-	- +	-	-	0
	LT	- - + +	-- ++	-	--	0	+	0	0	-	- +	0	0	+	-	0	0
ROA 3	ST	-	-	-	-	-	0	-	-	-	0	0	-	- ++ +	-	-	-
	LT	- - + +	-- ++	-	--	- +	- +	-	0	-	- +	0	-	- ++	-	0	0
ROA 4	ST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LT	--	-	-	--	+	+	0	0	0	- +	0	0	0	-	0	0
ROA 6	ST	-	-	-	-	-	0	0	-	0	0	0	0	- +	-	-	0
	LT	-	- +	0	--	-	- +	+	0	-	- +	0	0	+	0	-	0
ROA 7	ST	-	-	-	-	0	0	-	-	--	0	0	-	- +	0	-	-
	LT	-	-	0	--	0	- +	0	0	-	- +	0	-	+	0	-	0
ROA 12	ST	-	-	-	-	-	0	-	-	-	0	-	--	- +	--	--	--
	LT	0	-	0	--	- - +	- +	-	0	-	- +	0	--	+	-	-	0
ROA 13	ST	-	-	0	-	-	0	0	-	-	0	0	-	++ -	-	-	-
	LT	- +	- +	-	+	+	++	0	-	0	- +	0	0	++	0	-	0
ROA 14	ST	-	-	-	--	-	0	-	-	--	0	-	-	-	- ++ +	--	-
	LT	0	-- +	--	--	+	++	-	0	-	++	---	- +	+	+	0	0
ROA 15	ST	-	-	-	-	-	0	-	-	--	-	-	-	-	- ++ +	--	-
	LT	0	-	--	--	-	- +	-	0	-	- +	0	-	+	+	--	0

Option Ref	ST / LT	SEA Topics																
		Biodiversity			Water			Soil	Air	Climate		Hist. Env	Landscape	Population and Health			Material assets	
		1.1	1.2	1.3	2.1	2.2	2.3	3	4	5.1	5.2	6	7	8.1		8.2	9.1	9.2
ROA 17	ST	-	-	-	-	-	0	-	-	--	-	--	-	-	++ +	-	--	-
	LT	0	-	0	-	0	-	+	0	0	0	-	+	0	0	+	0	-	0

ROA short-term (construction) effects

9.4.4 Four potential major positive short-term effects were recorded for options within Roadford WRZ. These were for ROA3, ROA14, ROA15 and ROA17 in relation to the population and health objective (8.1) to "*maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing*". These were as a result of the construction generating positive effects on the economy of the local community, with anticipated high upfront CAPEX costs during construction.

9.4.5 One short-term moderate positive effect was identified within the Roadford WRZ. This was for ROA13 in relation to the population and human health objective (8.1). Moderate positive effects were identified due to the potential for employment and enhancement of the local economy through the use of local suppliers.

9.4.6 Four potential minor positive short-term effects have been recorded for options across the Roadford WRZ. These all relate to the population and health objective (8.1) and were recorded for ROA2, ROA6, ROA7 and ROA12. These effects were likely as a result of the anticipated job creation and working with local suppliers for materials and resources associated with the construction of the proposed options.

9.4.7 There were no major negative short-term effects identified within the Roadford WRZ.

9.4.8 Multiple potential moderate negative short-term effects were recorded for the Roadford WRZ. Some of these relate to ROA2 with the biodiversity objective (1.1) "*Protect and enhance designated and non-designated ecological sites*" and (1.2) "*protect, conserve and enhance biodiversity, including priority species, vulnerable habitats and habitat connectivity*" and the water objective (2.2) to "*increase resilience and reduce flood risk*". These effects likely arose due to the proposed works potentially disturbing designated sites, species and habitats, and the option being located within Flood Zone 3.

9.4.9 A potential moderate negative short-term effect has been identified for ROA14 in relation to the water objective (2.1) to "*protect and enhance the quality of the water environment and water resources*". There is potential for high impact due to the option preventing WFD objectives from being achieved for WFD waterbodies and excavation works exposing groundwater to contaminants.

9.4.10 Multiple potential moderate negative short-term effects were identified for the climatic factors objective (5.1) to "*reduce embodied carbon emissions*". This is predominantly due to infrastructure developments requiring more than 1,000tCO_2 equivalent of embodied carbon and the release of carbon emissions from machinery and vehicles.

9.4.11 A potential moderate negative short-term effect has been identified for ROA17 in relation to the historic environment objective "*Conserve, protect and enhance the historic environment, including archaeology*". This is because heritage assets are at risk of significant adverse effects and their settings are also expected to be disturbed during the construction works.

9.4.12 Multiple potential moderate negative short-term effects were identified for the material assets objective (9.1) "*Minimise resource use and waste production*". These effects are anticipated to be caused by the consumption of significant volumes of materials as well as the production of significant quantities of waste.

9.4.13 ROA12 has potential for multiple moderate negative short-term effects. This includes effects in relation to the landscape objective "*Conserve, protect and enhance landscape, townscape and seascape character and visual amenity*", the population and human health objective (8.2) "*Maintain and enhance tourism and recreation*" and the material assets objective (9.2) "*Avoid negative effects on built assets and infrastructure*". These effects arise from potential

disturbance to existing infrastructure, recreational activities, the transport network, North Devon AONB and greenfield land.

9.4.14 Options ROA3, ROA6, ROA7, ROA12, ROA13, ROA14, RA15 and ROA17 are identified as having the potential for minor negative short-term effects for objective (1.1) "*Protect and enhance designated and non-designated ecological sites*" due to the options requiring direct river abstractions and/or are located adjacent or nearby to designated sites, including SSSIs, SACs and SPAs. All these options apart were also identified as having the potential for minor negative effects on (1.2) "*protect, conserve and enhance biodiversity, including priority species, vulnerable habitats and habitat connectivity*". Finally, in relation to objective (1.3) "*reducing the spread or presence of INNS*", the potential for minor negative effects have been identified for ROA2, ROA3, ROA6, ROA7, ROA12, ROA14, ROA15 and ROA17. This is likely to be due to construction works taking place at existing WTWs or pumping stations, with potential for INNS spread through the sharing of equipment between different sites.

9.4.15 Potential minor negative short-term effects are predicted for the water objective (2.1) "*protect and enhance the quality of the water environment and water resources*" for ROA2, ROA3, ROA6, ROA7, ROA12, ROA13, ROA15 and ROA17. These effects are mostly anticipated due to the potential for pollutants to enter watercourses during construction, particularly for those options located within a Drinking Water Protected Area. Potential minor negative effects have also been identified under water objective (2.2) for "*resilience and reducing flood risk*", for options ROA3, ROA6, ROA12, ROA13, ROA14, ROA15 and ROA17 with adverse effects mostly being due to construction activities being likely to increase risk of flooding due to the location of the sites and the nature of the works being undertaken. Finally, minor adverse effects are also anticipated under objective (2.3) for "*Deliver reliable and resilient water supplies*" for option ROA2 due to the temporary reduction in abstraction of water resources from the Erme Estuary during construction.

9.4.16 Potential minor negative short-term effects have been identified for options ROA2, ROA3, ROA6, ROA7, ROA12, ROA14, ROA15 and ROA17, in relation to the soil objective to "*protect and enhance the functionality, quantity and quality of soils, including the protection of sites of geological importance*". These negative effects relate to the nature of the construction works for all options, which creates the potential for contamination to soil from accidental mechanical oil leaks and spillage of fuels and chemicals related to these activities.

9.4.17 Potential minor negative short-term effects have also been identified for ROA2, ROA3, ROA6, ROA7, ROA12, ROA13, ROA14, ROA15 and ROA17 in relation to the air objective to "*reduce and minimise air emissions*". These are likely caused by the potential for construction works to result in an increase in dust and air emissions from the operation of plant, equipment and increased vehicle movements.

9.4.18 Potential minor negative short-term effects have also been identified for ROA2, ROA3, ROA12 and ROA13 in relation to climate objective (5.1) "*reduce embodied and operational carbon emissions*", due to additional infrastructure generating increased embodied carbon emissions through the use of materials and construction activities. Options ROA15 and ROA17 are also identified as having a potential minor negative short term effect on climate objective (5.2) "*Reduce vulnerability to climate change risks and hazards*" due to the potential for construction works e.g. excavation to exacerbate the effects of climate change induced floods.

9.4.19 Potential neutral short-term effects were identified in response to the historic environment objective to "*conserve, protect and enhance the historic environment, including archaeology*", for all options with the exception of ROA12, ROA14 and ROA15. ROA12 and ROA15 were identified as having potential for minor negative effects due to their proximities to designated heritage assets including various Listed Buildings and Hayne Manor Registered Battle Field respectively, which have the potential to be impacted during construction pollution (noise, dust

and contamination) as well as temporary visual impacts. ROA14 has the potential to result in major negative impacts pre-mitigation due to the option encroaching the Hut Circles and two enclosures on Dean Moor, near River Avon Scheduled Monument. This has the potential to result in the loss and deterioration of the asset whilst potentially affecting the setting of this heritage asset, however this may be reduced to moderate risks after mitigation is in place. The neutral short-term effects were determined mostly due to the option involving no construction works or construction works taking place within the footprint of existing infrastructure, therefore being unlikely to directly affect heritage assets.

9.4.20 Option ROA2, ROA3, ROA7, ROA13, ROA14, ROA15 and ROA17 are identified as having the potential for minor negative short-term effects regarding objective (7) "*conserve, protect and enhance landscape, townscape and seascape character and visual amenity*" These minor negative effects relate to potential temporary impacts associated with minor construction activities and option upgrades.

9.4.21 Potential minor negative short-term effects have been recorded for options across the Roadford WRZ relating to the population and health objective (8.1) and were recorded for ROA2, ROA3, ROA6, ROA7, ROA12, ROA14, ROA15 and ROA 17. This is likely due to disruption to road users, access issues and effects related to construction traffic movements, such as increased dust, noise and vibration. Most of these options have also been identified as having the potential for minor negative effects on objective (8.2) too, apart from ROA7 which has the potential for neutral effects, and ROA12, which has the potential for moderate negative effects on this objective.

9.4.22 For objective (9.1) "*Minimise resource use and waste production*" potential short term negative effects were identified for options ROA2, ROA3, ROA6, ROA7 and ROA13, due to resource use and the potential for waste production. For objective (9.2) "*Avoid negative effects on built assets and infrastructure*" potential short term negative effects were identified for options ROA3, ROA7, ROA13, ROA14, ROA15 and ROA17.

9.4.23 Potential neutral short-term effects have been identified for a number of options and objectives throughout Roadford WRZ. Short-term neutral effects were identified across all objectives for ROA4 as a result of the option not requiring physical construction works as no infrastructure changes are required, or the option being unlikely to affect the water supply during construction.

ROA long-term (operational) effects

9.4.24 No potential major positive long-term effect was identified for Roadford WRZ.

9.4.25 Moderate positive effects were identified for the biodiversity objective (1.1) "*Protect and enhance designated and non-designated ecological sites*" and (1.2) "*protect, conserve and enhance biodiversity, including priority species, vulnerable habitats and habitat connectivity*" for ROA2 and ROA3, due to the potential positive effects associated with the Dartmoor SAC.

9.4.26 The Roadford WRZ recorded moderate positive long-term effects for ROA13 and ROA14 in relation to the water objective (2.3) "*deliver reliable and resilient water supplies*". These were entirely as a result of both options are anticipated to provide additional water resources for the SWW region as a result of increased abstraction.

9.4.27 ROA14 has been identified as having potential moderate positive effects in relation to the climate objective (5.2) "*reduce vulnerability to climate change risks and hazards*", due to the fact that the enhancement of provision of water resources could provide resilience against drier weather.

9.4.28 Furthermore, ROA3 and ROA13 have been identified as also having potential for moderate positive effects in relation to objective (8.1) "*maintaining and enhance the health and wellbeing*

of the local community, including economic and social wellbeing" due to the potential for ongoing job creation and local economic impact.

9.4.29 A number of potential minor positive long-term effects were recorded for the Roadford WRZ. ROA13 and ROA14 have potential for minor positive effects associated with the biodiversity objectives, associated with potential improvements in water quality.

9.4.30 These include at least one minor positive long-term effect for all options in relation to the water objectives. These potential effects are attributed to increased resilience in the water environment or water supply in relation to the protection and enhancement of the quality of the water environment and water resources, the increased resilience and reduced flood risk and the delivery of reliable and resilient water supplies.

9.4.31 One potential minor positive long-term effect was recorded for ROA6 and the soil objective to "*protect and enhance the functionality, quantity and quality of soils*", as a result of the option being located on a brownfield site and the opportunity for land remediation.

9.4.32 All options are anticipated to have minor positive long-term effects for the climate objective (5.2) to "*reduce vulnerability to climate change risks and hazards*", with the exception of ROA12 and ROA14, which have moderate positive long-term effects in this aspect. These potential effects have been identified a variable increase in abstraction from each option, dependent on the option type and scale. Thus enabling the options to process more water in drier conditions as a result of increased abstraction whilst ensuring provision of water resources across the region through constructing a greater area for storage of water further increasing resilience to a changing climate creating a more reliable and efficient water supply to the region.

9.4.33 A potential minor positive effect on landscape has been identified for option ROA14. This is because the increased size of the reservoir may also be perceived as an improved landscape feature.

9.4.34 Potential minor positive long-term effects have been identified for ROA2, ROA6, ROA7, ROA12, ROA14, ROA15 and ROA17 in response to the population and human health objective (8.1) "*maintaining and enhance the health and wellbeing of the local community, including economic and social wellbeing*". These are anticipated due to the potential for increasing the reliability of the water supply in the area, which will subsequently improve the wellbeing of the community. ROA14 and ROA15 were also identified as having the potential for positive effects on objective (8.2) "*Maintain and enhance tourism and recreation*".

9.4.35 One potential major negative long-term effect has been identified for option ROA14 in relation to the historic environment objective (6) to "*Conserve, protect and enhance the historic environment, including archaeology".* This is associated with permanent loss of part of the 'Hut circles and two enclosures on Dean Moor, near River Avon' Scheduled Monument.

9.4.36 Multiple potential moderate negative long-term effects have been identified across the Roadford WRZ options. This includes moderate adverse effects on objective (2.1) "*Protect and enhance designated and non-designated ecological sites"* for ROA3 and ROA4. ROA2, ROA3 and ROA14 have been identified as having potential adverse effects on objective (2.2) "Protect, conserve and enhance biodiversity, including priority species, vulnerable habitats and habitat connectivity". Finally, ROA14 and ROA15 have both been identified as having potential moderate adverse effects on objective (1.3) "*Reduce the spread or presence of INNS*". The effects identified were associated with options increasing abstractions and statutory designated sites being hydrologically connected to these options and increases or decreases in water levels affecting nearby habitats, along with an increased risk of INNS spread.

9.4.37 Moderate negative effects have been identified for ROA2, ROA3, ROA4, ROA6, ROA7, ROA12, ROA14 and ROA15 in relation to the water objective (2.1) "*protect and enhance the quality of*

the water environment and water resources", likely as a result of deterioration of water quality and/or water levels due to over abstraction. Furthermore, a moderate negative effect has also been identified for ROA12 in relation to water objective (2.2) "*Increase resilience and reduce flood risk*".

9.4.38 Potential moderate negative long-term effects were determined for ROA17 in relation to the historic environment objective to "*conserve, protect and enhance the historic environment, including archaeology*" . This is associated with potential for lowering of the groundwater table which could have adverse effects on water-dependant heritage assets or paleoenvironmental remains.

9.4.39 Finally, there is also a potential for a moderate negative effect on objective (7) "*Conserve, protect and enhance landscape, townscape and seascape character and visual amenity*" for ROA12 associated with the option being located within a Historic NCA consisting of mainly fields, with potential to be affected by the new above ground infrastructure associated with the option.

9.4.40 Potential minor negative long-term effects have been identified across the Roadford WRZ. These include minor negative long-term effects for at least one biodiversity objective for all options other than ROA14, which scored moderate negative impacts. The minor negative long-term effects were mostly attributed to changes in habitat or water quality as a result of increased abstraction, new infrastructure being located on greenfield land or arable land and/or new infrastructure resulting in the permanent loss of habitats.

9.4.41 Potential minor negative long-term effects have also been recorded for ROA17 relating to the water objective (2.1) "*protect and enhance the quality of the water environment and water resources*", likely due to minor reductions in flow volumes downstream of the abstraction points, which would reduce water levels and quality. ROA3, ROA6 and ROA15 were identified as having potential for minor adverse effects on objective 2.2 "*Increase resilience and reduce flood risk*". Finally, ROA3, ROA6, ROA7, ROA12, ROA15 and ROA17 also had potential for negative effects on objective (2.3) "*Deliver reliable and resilient water supplies".*

9.4.42 For objective (3) "*Protect and enhance the functionality, quantity and quality of soils, including the protection of sites of geological importance*" the following options were identified as having the potential for minor negative effects: ROA3, ROA12, ROA14 and ROA15. This is likely associated with permanent loss or damage to soils.

9.4.43 In relation to the air quality objective to reduce and minimise air emissions ROA13 has been identified as having potential minor negative long-term effects, widely attributed to current WTW operating at an increased capacity or the construction of new infrastructure.

9.4.44 For ROA2, ROA3, ROA6, ROA7, ROA12, ROA14, and ROA15, likely minor negative long-term effects have been identified for the climate objective (5.1) "*reduce embodied and operational carbon emissions*" All options, other than ROA14 have been identified as having potential for minor negative long-term effects on climate objective (5.2) "*reduce vulnerability to climate change risks and hazards*". This was largely caused by increase abstractions during periods of climate related drought creating potential for a reduction in water levels.

9.4.45 Potential minor negative long-term effects were identified for the landscape objective to "*conserve, protect and enhance landscape, townscape and seascape character and visual amenity*", for ROA3, ROA7, ROA14 and ROA15. This is in relation to visual impacts as a result of the expansion of existing sites or the presence of new infrastructure.

9.4.46 ROA3 has been identified as having potential minor negative effect on objective (8.1) "Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing ". Potential minor negative long-term effects were also recorded for ROA2, ROA3,

ROA4 and ROA12 in relation to the population and health objective (8.2) "*maintain and enhance tourism and recreation*". This is likely a result of a possible change in water levels.

9.4.47 Minor negative effects have been identified for ROA6, ROA7, ROA12, ROA13 and ROA17 relating to the material assets objective (9.1) "*minimise resource use and waste production*". These are largely caused by the potential for reductions in the water levels, quality and low rates affecting water leisure activities and due to the additional energy consumption and/or additional use of materials to facilitate the options, respectively.

9.4.48 Potential neutral long-term effects have also been identified for the material assets objective (9.2) "*avoid negative effects on built assets and infrastructure*", for all options. The neutral long-term effects are largely attributed to the option connecting to existing infrastructure or being located within an existing WTW site.

9.5 Wimbleball WRZ

9.5.1 The Wimbleball WRZ supply options comprise:

- **WIM1:** Abstraction of Wimbleball Reservoir compensation flow when making supply releases. Downstream of abstraction point, the River Erme will have a reduced flow and there will be increased water treatment and pumping.
- **WIM2:** Sid Valley groundwater source commissioning – Equip and make operational existing borehole; pump, headworks, control and monitoring system, connecting pipework. Construction of a new groundwater source treatment system including chlorination and iron and manganese removal plant within the existing site footprint.
- **WIM4:** Umborne Brook groundwater source abstraction increase - A reduction in flow downstream in the Umborne Brook and increased water treatment / distribution. The current intake is restricted by the current licence. The licence will be varied to allow a greater volume of water to be taken over the year.
- **WIM5:** Indirect potable reuse – stream support for Dotton WTW – Pumped treated effluent from Sidmouth WWTW directly to the River Otter using a new pipeline (5km) and outfall to augment the river during low flow periods. High pumping power requirements due to a height variance in the pipeline route.
- **WIM6:** Increase Allers WWTW capacity to 36Ml/d - to cover East Devon and the east coast of East Devon in winter, with Dotton WTW at a minimum in the winter. Will require an increase in Bolham licence (winter) and a reduction in the Dotton licence (winter) – Increase daily abstraction licence to 36Ml/d and upgrade Bolham abstraction to pump additional 4Ml/d. Upgrade WTW to treat an additional 4Ml/d, with distribution network improvements.
- **WIM7:** Increase Pynes to licence limit 66.46Ml/d – Upgrade WTW to treat an additional 6.5Ml/d. The final works could include new river intake streams, raw water main pipeline replacements, installation of additional water treatment equipment, and pump replacements. There will be no distribution network changes. The WTW extracts untreated water from the River Exe. The natural river flows can be supplemented with releases from Wimbleball reservoir in the River Haddeo, a tributary of the River Exe.
- **WIM8:** Re-introduction of North Exeter groundwater source west of the Exe - Agree licence changes with EA and commission the site for use.
- **WIM9:** Re-introduction of North Exeter groundwater source east of the Exe – Agree licence changes with EA and commission the site, as well as installation of a new power supply.
- **WIM11:** Couchill Springs, Seaton. Supplement water supply to Bovey Lane WTW from Couchill Springs via a new 1.49km pipeline.
- **WIM12:** Allers Springs. Groundwater abstraction from Allers Springs which is then piped to Allers WTW for treatment.

9.5.2 The above options have been assessed against the SEA objectives, using the assessment criteria guide questions (see **Section 7.2 7.2)** and scoring definitions (see **Annex 1: Appendix E**) to determine the expected nature and scale of effects.

9.5.3 A summary of the effects against each objective is presented below in **Table 9.4**, and discussed in the following section. Short-term (ST) construction effects and long-term (LT) operational effects are summarised separately due to the differing nature of effects.

Table 9.4: Wimbleball WRZ Summary of SEA Findings

Option Ref	ST / LT	SEA Topics															
		Biodiversity			Water			Soil	Air	Climate		Hist. Env	Landscape	Population and Health		Material assets	
		1.1	1.2	1.3	2.1	2.2	2.3	3	4	5.1	5.2	6	7	8.1	8.2	9.1	9.2
WIM 1	ST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LT	--	-	0	--	0	- - +	0	0	-	- +	0	0	0	-	-	0
WIM 2	ST	0	-	-	-	-	0	-	-	-	0	0	-	- +	-	-	0
	LT	0	-	0	--	0	- +	-	0	0	-	0	0	+	0	-	0
WIM 4	ST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LT	0	-	0	-	0	- +	0	0	-	-	0	0	0	0	0	0
WIM 5	ST	-	-	-	--	-	0	-	-	-	0	-	-	- ++	-	-	-
	LT	0	-	0	-	0	- +	0	0	-	-	0	0	0	0	-	0
WIM 6	ST	0	-	0	0	--	0	-	-	--	0	0	-	- +	0	-	-
	LT	0	-	0	-	--	+	-	0	-	- +	0	0	+	0	-	0
WIM 7	ST	-	-	0	0	-	0	-	-	--	0	-	-	- +	0	-	0
	LT	--	-	0	--	0	- +	0	0	-	- +	0	0	+	-	-	0
WIM 8	ST	0	-	-	-	-	0	0	-	0	0	0	0	- +	0	-	0
	LT	0	- +	0	- - +	- +	- +	0	0	0	- +	0	0	+	0	-	0
WIM 9	ST	0	0	0	0	0	0	0	-	0	0	-	0	+	0	-	0
	LT	0	- +	0	- - +	0	- +	0	0	0	- +	0	0	+	0	-	0
WIM 11	ST	0	0	0	0	-	0	-	-	-	-	-	0	- +	-	-	-
	LT	0	0	-	-	- +	+	-	0	0	- +	0	0	0	0	-	0
WIM12	ST	0	-	0	-	0	0	0	-	0	0	-	-	+	-	-	0
	LT	0	-	0	-	0	- +	0	0	0	- +	0	0	0	-	-	0

WIM short-term (construction) effects

9.5.4 There have been no potential major positive short-term effects identified for options within the Wimbleball WRZ.

9.5.5 One moderate positive effect has been identified for objective (8.1) "I" for WIM5, due to high CAPEX costs and potential for job creation.

9.5.6 Potential minor positive short-term effects have been identified for the majority of the options, with the exception of WIM1, WIM4 and WIM5, against the population and health objective (8.1) to "*maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing*". Options WIM1 and WIM4 both scored neutral for the objective this is mostly due to the options not requiring physical construction works, the location of the works being unlikely to affect active lifestyles and the potential for job creation which, in turn, could improve the local economy being of a low potential to create minor positive effects. Other options that did score for potential positive minor effects were due to job creation and the positive cascading effects upon the local economy that the construction of the option may have.

9.5.7 There were no major negative short-term effects identified for the Wimbleball options.

9.5.8 A potential moderate negative effect has been identified for water objective (2.1) "*Protect and enhance the quality of the water environment and water resources*" for option WIM5. This is associated with the potential for the options to affect the WFD status of nearby waterbodies. Potential moderate negative short-term effects have been identified for WIM6 in relation to the water objective (2.2) to "*increase resilience and reduce flood risk*". This has been identified as the option is located partially within Flood Risk Zone 3 and directly adjacent to the River Exe.

9.5.9 Potential moderate negative short-term effects have been identified for WIM6 and WIM7 in relation to climate objective (5.1) "*reduce embodied and operational carbon emissions*", due to the construction of additional infrastructure resulting in an increased use of machinery, vehicles and construction materials.

9.5.10 Options WIM5 and WIM7 are identified as having the potential for minor negative short-term effects for objective (1.1) "*Protect and enhance designated and non-designated ecological sites*" due to the options requiring direct river abstractions and/or are located adjacent or nearby to designated sites, including SSSIs, SACs and SPAs. WIM2, WIM5, WIM6, WIM7, WIM8 and WIM12 were also identified as having the potential for minor negative effects on (1.2) "*protect, conserve and enhance biodiversity, including priority species, vulnerable habitats and habitat connectivity*". Finally, in relation to objective (1.3) "*reducing the spread or presence of INNS*", the potential for minor negative have been identified for WIM2, WIM5 and WIM8. This is likely to be due to construction works taking place at existing WTWs or pumping stations, with potential for INNS spread to increase through the sharing of equipment between different sites.

9.5.11 Potential minor negative short-term effects are predicted for the water objective (2.1) "*protect and enhance the quality of the water environment and water resources*" for WIM2, WIM8 and WIM12. These effects are mostly anticipated due to the potential for pollutants to enter watercourses during construction, particularly for those options located within a Drinking Water Protected Area. Potential minor negative effects have also been identified under water objective (2.2) for "*resilience and reducing flood risk*", for options WIM2, WIM5, WIM7, WIM8 and WIM11 with adverse effects mostly being due to construction activities being likely to increase risk of flooding due to the location of the sites and the nature of the works being undertaken.

9.5.12 Potential minor negative short-term effects have been identified for options WIM2, WIM5, WIM6, WIM7 and WIM11, in relation to the soil objective to "*protect and enhance the functionality, quantity and quality of soils, including the protection of sites of geological importance*". These negative effects relate to the nature of the construction works for all options, which creates the

potential for contamination to soil from accidental mechanical oil leaks and spillage of fuels and chemicals related to these activities.

9.5.13 Potential minor negative short-term effects have also been identified for WIM2, WIM5, WIM6, WIM7, WIM8, WIM9, WIM11, WIM12 in relation to the air objective to "*reduce and minimise air emissions*". These are likely caused by the potential for construction works to result in an increase in dust and air emissions from the operation of plant, equipment and increased vehicle movements.

9.5.14 Potential minor negative short-term effects have also been identified for WIM2, WIM5, WIM11 in relation to climate objective (5.1) "*reduce embodied and operational carbon emissions*", due to additional infrastructure generating increased embodied carbon emissions through the use of materials and construction activities. WIM11 also has potential for minor negative effects on objective (5.2) "*Reduce vulnerability to climate change risks and hazards*", associated with construction works e.g. excavation could exacerbate the effects of climate-change induced floods.

9.5.15 Potential minor negative short-term effects have been identified for WIM5, WIM7, WIM9, WIM11 and WIM12 in response to the historic environment objective to "*conserve, protect and enhance the historic environment, including archaeology*". This is related to construction activities having potential to harm the historic environment, including previously unknown archaeological remains.

9.5.16 Options WIM2, WIM5, WIM6, WIM7 and WIM12 have all been identified as having potential for negative impacts on the landscape objective "*Conserve, protect and enhance landscape, townscape and seascape character and visual amenity*".

9.5.17 Potential minor negative short-term effects have been recorded for options across the Roadford WRZ relating to the population and health objective (8.1) and were recorded for WIM2, WIM5, WIM6, WIM7, WIM8 and WIM11. This is likely due to disruption to road users, access issues and effects related to construction traffic movements, such as increased dust, noise and vibration. WIM2, WIM5, WIM11 and WIM12 have also been identified as having the potential for minor negative effects on objective (8.2) too.

9.5.18 Potential minor negative short-term effects have been identified for WIM2, WIM5, WIM6, WIM7, WIM8, WIM9, WIM11 and WIM12 in relation to the materials assets objective (9.1) of "*minimising resource use and waste production*", due to the use of new resources and production of waste material. WIM5, WIM6 and WIM11 have also been identified as potentially having minor negative effects on objective (9.2) "*Avoid negative effects on built assets and infrastructure*".

9.5.19 Neutral short-term effects are anticipated for every objective for WIM1 and WIM4, due to no infrastructure changes being required.

WIM long-term (operational) effects

9.5.20 There have been no potential major or moderate positive long-term (operational) effects identified for options within the Wimbleball WRZ.

9.5.21 Options WIM8 and WIM9 are expected to result in potential minor positive long-term effects on biodiversity, in relation to the objective (1.2) "*protect, conserve and enhance biodiversity including priority species, vulnerable habitats and habitat connectivity*". This is due to an enhancement of biodiversity due to treated water being pumped into nearby river(s), a reduction in abstraction licence volumes and an increase in flow downstream from a discharge point.

9.5.22 Options WIM8 and WIM9 are expected to result in a minor positive long-term effect with regard to the "*protect and enhance the quality of the water environment and water resources*" objective

(2.1). This is due to both options resulting in an increase in flow downstream, which has the potential to create a minor localised improvement to water quality. WIM8 and WIM 11 are also expected to result in minor positive long-term effects in regard to objective (2.2) "*Increase resilience and reduce flood risk*" due to the options potentially improving resilience to flood risk.

9.5.23 All options within Wimbleball WRZ have been assessed as having potential minor positive long-term effects for the water objective (2.3) to "*deliver reliable and resilient water supplies*". Due to the nature of the options, all are expected to create more resilient water supplies in the respective areas.

9.5.24 Options WIM1, WIM6, WIM7, WIM8, WIM9, WIM11 and WIM12 are expected to result in a potential minor positive long-term effect in regard to the climatic factors objective (5.2) "*reducing vulnerability to climate change risks and hazards*", mainly due to the potential to slightly alleviate effects on climate change related flooding from the increased intake of water from the subsequent rivers due to increased WTW treatment works.

9.5.25 Potential minor positive long-term effects have been identified for all options for the population and health objective (8.1) to "*maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing*" except for WIM1, WIM4, WIM5, WIM11 and WIM12 (neutral). These potential minor positive effects were identified as the options would be increasing water availability across the areas and are expected to result in low or moderate OPEX costs. The options which scored neutral are due to the very minimal ongoing OPEX costs needed for the operational phase of the option.

9.5.26 There were no major potential long-term negative effects identified for Wimbleball WRZ.

9.5.27 Options WIM1 and WIM7 have potential for moderate negative effects in relation to objective (2.1) "*Protect and enhance designated and non-designated ecological sites*". This is associated with changes in abstraction levels, potentially resulting in adverse effects on ecological sites.

9.5.28 Option WIM1, WIM2, WIM7, WIM8 and WIM9 are expected to result in potential moderate negative long-term effects in relation water objective (2.1) "*protect and enhance the quality of the water environment and water resources*". This is due to increased river abstraction having the potential to lead to a permanent deterioration of WFD status. WIM6 has potential for a moderate negative effect on objective (2.3) "*Increase resilience and reduce flood risk"* due to the option being located within Flood Zone 3. Finally, WIM1 also has potential for moderate negative effect on water objective (2.3) "*Deliver reliable and resilient water supplies"* due to a potential deterioration of water quality.

9.5.29 Potential minor negative long-term effects have been identified for all options, with the exception of WIM11 which scored neutral, in relation to biodiversity objective (1.2) "*protect, conserve and enhance biodiversity, including priority species, vulnerable habitats and habitat connectivity*". This is due to abstraction altering river flows downstream, and therefore affecting downstream species sensitive to change, and the potential for increased use of chemicals for water treatment presenting increased risk of leakages and spillages. WIM11 was the only option to score minor negative for objective (1.3) "*Reduce the spread or presence of INNS*" due to the low risk of INNS transfer.

9.5.30 Potential minor negative long-term effects have been identified for WIM4, WIM5, WIM6, WIM11 and WIM12 all options, in relation to water objective (2.1) "*protect and enhance the quality of the water environment and water resources*". This is due to increased abstractions having the potential to affect groundwater or WFD waterbodies if over-abstraction occurs, and negative effects due to the lowering of the water table. WIM11 also scored minor negative in relation to objective (2.2) "*Increase resilience and reduce flood risk*" as part of the option is located within flood zone 3. WIM2, WIM4, WIM5, WIM7, WIM8, WIM9 and WIM12 also scored minor negative

in relation to objective (2.3) "*Deliver reliable and resilient water supplies*", likely due to factors such as increased abstraction having an effect on water quality/availability downstream.

9.5.31 Potential minor negative effects have been identified for WIM2, WIM6 and WIM11 in relation to objective (3) "*Protect and enhance the functionality, quantity and quality of soils, including the protection of sites of geological importance*" due to the long term loss or damage to soils.

9.5.32 Potential minor negative long-term effects have been identified for options WIM1, WIM4, WIM5, WIM6 and WIM7 in terms of climate objective (5.1) "*reducing operational carbon emissions*", due to the assumption that all options will utilise fossil fuel sources of energy for process such as abstraction, pumping, treatment and/or distribution, and therefore increase operational carbon emissions. Opportunities for incorporation of renewable energy supplies is not yet known at this stage. All options have been identified as having potential for minor negative effects on objective (5.2) "*Reduce vulnerability to climate change risks and hazards*". This was largely caused by increase abstractions during periods of climate related drought creating potential for a reduction in water levels.

9.5.33 Potential neutral long-term effects have been identified for all options in terms of the historic environment objective "*conserve, protect and enhance the historic environment, including archaeology*", due to the options directly affecting significant historic assets or their setting and not expected to enhance public access and/or enjoyment of historic assets.

9.5.34 All options have all been assessed as having potential for neutral long-term effects for the landscape objective "*conserve, protect and enhance landscape, townscape and seascape character and visual amenity*" and air objective "*reduce and minimise air emissions*". This is mostly due to options being located on existing sites or existing vegetation having potential to screen views from surrounding areas onto developments and increased operational emissions having a negligible effect on air quality, respectively.

9.5.35 WIM1, WIM7 and WIM12 have been identified as having potential for minor negative effects on objective (8.2) "*Maintain and enhance tourism and recreation*", likely due to changes in water quality and/or quantity, which could impact leisure and tourism activities on or close to the water.

9.5.36 All options, with the exception of WIM4 which scored neutral due to no new materials or construction works being required, identified potential for minor negative long-term effects in relation to material assets objective (9.1) "*minimise resource use and waste production*", which is mostly due to the increased energy outputs required to operate the facilities.

9.5.37 All options scored neutral for objective (9.2) "*Avoid negative effects on built assets and infrastructure*" as no effects on built assets or infrastructure are anticipated.

9.6 Isles of Scilly WRZ

9.6.1 The IoS became part of SWW's supply area in April 2020. The islands have a unique and remote location, and are not connected to the mainland water supply systems. As the IoS came into SWW's management more recently than the remainder of the supply area, there is a smaller body of evidence and studies in place to support SWW's development of options for the islands. During development of the WRMP the IoS options were identified for potential inclusion within AMP7 and as such were not further developed within the Environmental Report. However, during the development of the plan, these options have been retained. As a result, as part of the SEA some of the IoS options are not as fully developed in terms of location and detail as the other WRZs. Some of the options are therefore high-level and include broad location possibilities, meaning that the environmental assessments could not be targeted at a specific site and needed wider consideration. The assessments have taken a 'worst-case' view

of the potential area for an option when the exact location is not known, to ensure that potential adverse effects are not omitted.

9.6.2 The IoS WRZ supply options comprise:

- **ISMY1:** St Mary's new borehole (location 1) – Drilling of new supply borehole 30m depth, 150mm diameter borehole / c. 1kW pump. Associated infrastructure (headworks, kiosk and pipework) wastewater piped via raw main (estimated 32mm diameter for 500m distance) to existing WTW. Assumes spare capacity at existing WTW.
- **ISMY2:** St Mary's new borehole (location 2) – Drilling of new supply borehole at 30m depth with 150mm diameter borehole / c. 1kW pump. Associated infrastructure (headworks, kiosk and pipework) and requiring standalone treatment, with water piped directly into supply network (estimated 32mm diameter for 500m distance).
- **ISMY4:** St Mary's – Increase Existing Desalination Plant Capacity – Additional process stream at existing RO plant. A new building to support related infrastructure would be required.
- **ISB4:** Bryher – Increase Existing Desalination Plant Capacity – Additional process stream at existing RO plant plus increased borehole yield and/or new borehole source. A new building to support related infrastructure would be required.
- **IST1:** Tresco new borehole – Drilling of new supply borehole within either the south or east of the island of Tresco. Assumed 30m depth, 0.75kW pump, 100mm diameter borehole pipework, with associated infrastructure (headworks, kiosk and pipework) and on-site treatment (assume UV disinfection) wastewater piped via new raw main (estimated 40mm diameter for 500m distance) to existing WTW.

9.6.3 The above options have been assessed against the SEA objectives, using the assessment criteria guide questions (see **Section 7.2)** and scoring definitions (see **Annex 1: Appendix E**) to determine the expected nature and scale of effects.

9.6.4 A summary of the effects against each objective is presented in below in **Table 9.5** and discussed in the following section. Short-term (ST) construction effects and long-term (LT) operational effects are summarised separately due to the differing nature of effects.

Table 9.5: Isles of Scilly WRZ Summary of SEA Findings

Option Ref	ST / LT	SEA Topics															
		Biodiversity			Water			Soil	Air	Climate		Hist. Env	Landscape	Population and Health		Material assets	
		1.1	1.2	1.3	2.1	2.2	2.3	3	4	5.1	5.2	6	7	8.1	8.2	9.1	9.2
ISMY1	ST	-	-	-	-	0	0	-	-	-	0	-	-	-	0	-	-
	LT	0	-	0	-	0	- +	0	0	-	- +	0	-	0	0	-	0
ISMY2	ST	-	-	-	-	0	0	-	-	-	0	-	-	-	0	-	-
	LT	0	-	0	-	0	- +	0	0	-	- +	-	-	0	0	-	0
ISMY4	ST	?	?	-	-	0	0	?	-	-	0	?	-	-	-	-	?
	LT	?	?	-	-	0	+	0	-	-	- +	0	-	0	-	-	0
ISB4	ST	-	-	0	-	0	0	0	-	-	0	-	-	0	0	-	-
	LT	0	-	-	--	0	+	-	0	0	0	?	0	0	-	-	0
IST1	ST	-	-	0	-	0	0	-	-	-	0	-	-	0	-	-	-
	LT	0	-	0	---	0	- +	-	0	-	0	0	-	0	-	-	0

IoS short-term (construction) effects

9.6.5 There have been no potential major, moderate or minor positive short-term (construction) effects identified for options within the IoS WRZ.

9.6.6 There have also been no potential major short-term negative effects (construction) identified for options within the IoS WRZ.

9.6.7 Potential minor negative short-term effects have been recorded for a number of options and objectives within the IoS WRZ. These include potential minor negative short-term effects for ISMY1, ISMY2, ISB4 and IST1 in relation to the biodiversity objective (1.2) to "*protect, conserve and enhance biodiversity, including priority species, vulnerable habitats and habitat connectivity*". These potential minor negative short-term effects were mostly determined due to the potential for construction runoff, dust and vibrations which may disturb priority species and habitats.

9.6.8 In relation to the air quality objective (4) "*reduce and minimise air emissions*", potential minor negative short-term effects were identified for all options as a result of the construction works generating construction dust and emissions.

9.6.9 SEA objective 6 "*Conserve, protect and enhance the historic environment, including archaeology*" has the potential to result in minor negative effects across all options with the exception of ISMY4. This is due to the options' presence in relation to historic assets. Potential minor negative short-term effects were identified for three of the options within the IoS, WRZ (ISMY1, ISMY2 and ISMY4) in relation to the population and health objective (8.1) "*maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing*", mostly due to construction works affecting congestion on roads and noise and vibration affecting the local community.

9.6.10 Objective 8.2 "*Maintain and enhance tourism and recreation*" has the potential to result in minor negative effects for options ISMY4 and IST1 as a result of construction works leading to temporary impacts on recreational activities.

9.6.11 Potential minor negative short-term effects were identified across all options in response to four SEA objectives including the material assets objective (9.1) "*minimise resource use and waste production*". This was as a result of the using materials to facilitate and deliver construction works and any associated waste production. Minor negative short-term effects were also identified for the landscape objective (7), as a result construction works being located within the IoS AONB and the IoS NCLA. Objective (2.1) to "*protect and enhance the quality of the water environment and water resources*" was also assessed as a minor negative effect for all options due to the potential for new below-ground structures to lead to groundwater contamination, or potential for ground or surface water contamination from runoff or construction materials and plant. Minor negative short-term effects were also determined for objective 5.1 "*Reduce embodied and operational carbon emissions*" as a result of short-term greenhouse gas emissions from construction activities.

9.6.12 Potential minor negative short-term effects were identified for all options with the exception of ISMY4 in relation to materials assets objective (9.2) "*avoid negative effects on built assets and infrastructure*". This is due to potential disruption to local traffic networks during construction.

9.6.13 Neutral short-term effects are assessed for all of options and objectives within IoS WRZ. These include neutral short-term effects in response to the water objective (2.2) "*increase resilience and reduce flood risk*" for all options. This is as a result of a majority of the options being located within Flood Zone 1 and therefore the construction works considered as having a likely negligible effect on flooding in the short-term.

9.6.14 Also, in relation to the water objective (2.3) "*deliver reliable and resilient water supplies*", all options were assessed as having potential neutral short-term effects, due to effective implementation of mitigation measures, or no construction works taking place that would cause adverse effects.

9.6.15 For all options within the IoS WRZ, in relation to the climate objective (5.2) "*reduce vulnerability to climate change risks and hazards*", potential neutral short-term effects have been recorded. Overall, this is due to the fact there are currently no known climate resilience measures in place for the construction phase of options.

9.6.16 Potential neutral short-term effects have also been identified for options ISB4 and IST1 in relation to the population and health objective (8.1) "*maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing*". This is as a result of the options having no nearby receptors which are deemed sensitive to construction noise and vibrations and an increase in construction vehicles.

IoS long-term (operational) effects

9.6.17 There are no major positive long-term effects identified for options within IoS WRZ. One major long-term negative effect is anticipated within IoS WRZ associated with option ISMY4.

9.6.18 There are no long-term moderate positive or negative effects anticipated across the IoS WRZ.

9.6.19 Potential minor positive long-term effects have been identified for all options within the IoS WRZ in relation to the water objective (2.3) to "*deliver reliable and resilient water supplies*". This is due to the options providing additional water for use within the IoS region.

9.6.20 Similarly, in relation to the climate objective (5.2) to "*reduce vulnerability to climate change risks and hazards*", potential minor positive long-term effects have been recorded for options ISMY1, ISMY2 and ISMY4. These effects are due to additional abstraction and water transfer having potential to result in increased resilience to climate change.

9.6.21 Potential neutral long-term effects have been identified for all options within the IoS WRZ in relation to the population and health objective (8.1) "*maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing*". This is due to the small scale of construction activities required and the limited scope for local resourcing.

9.6.22 Potential major negative long-term effects were identified for IST1 in relation to the water objective (2.1) "*protect and enhance the quality of the water environment and water resources*". This is due to the increased water abstraction which may lead to a deterioration of groundwater levels and quality, and was outlined by the WFD Level 1 assessment as having potential for high level impacts on the IoS groundwater resources.

9.6.23 Potential moderate negative long-term effects have been identified for option ISB4 in relation to the water objective (2.1) "*protect and enhance the quality of the water environment and water resources*". This is largely attributed to increased abstraction having potential to deteriorate groundwater level and quality, affecting GWDTEs.

9.6.24 Potential minor negative long-term effects have been identified for multiple options and objectives across the IoS WRZ. These include options ISMY1, ISMY2, ISB4 and IST1 recording a minor negative long-term effect for the biodiversity objective (1.2) to "*protect, conserve and enhance biodiversity, including priority species, vulnerable habitats and habitat connectivity*". These identified potential effects are predominantly attributed to activities, such as abstraction. This has the potential to affect biodiversity in surrounding waterbodies and subsequently priority habitats through the reduction in water flows which may alter the environment in which these habitats are located.

9.6.25 Potential minor negative long-term effects have also been identified in relation to the water objective (2.1) "*protect and enhance the quality of the water environment and water resources*" for options ISMY1, ISMY2 and ISMY4, attributed to a potential deterioration of groundwater quality and quantity.

9.6.26 Additionally, options ISMY1, ISMY2, ISMY4 and IST1 has been identified as having potential minor negative long-term effects arose in relation to the climate objective (5.1) to "*reduce embodied and operational carbon emissions*". This is mainly attributed to the increase in operational energy required to facilitate the option. Option ISB4 is identified as having neutral impacts in relation to this objective during its operation.

9.6.27 For material assets objective (9.1) "*minimise resource use and waste production*" all options were identified to have potential for minor negative long-term effects. The potential minor negative long-term effects were identified due to the likely energy consumption increase as a result of the options becoming operational.

9.6.28 Neutral long-term effects were recorded for a number of objectives for options within the IoS WRZ. In relation to the biodiversity objective (1.1) "*protect and enhance designated and non-designated ecological sites*", with the exception of ISMY4 which was recorded as having uncertain long-term effects. Neutral long-term effects were largely due to abstraction yields being low enough to not affect designated and non-designated sites or appropriate mitigation creating negligible effects.

9.6.29 In relation to the water objective (2.2) to "*increase resilience and reduce flood risk*", all options were identified as having neutral long-term effects. This is as a result of some options being developed on brownfield sites, some requiring no additional land take or being located within Flood Zone 1. Development of options on brownfield sites reduces the potential for increased flood risk as these sites are likely to already have high volumes of impermeable surfaces, therefore by developing on these sites in comparison to developing on a greenfield site means no new major impermeable surfaces are being created. Thus, meaning no new major impact upon flood risk is likely to arise from these developments.

9.6.30 Neutral long-term effects were identified for options ISMY1, ISMY2 and ISMY4 in regards to the soil objective (3) to "*protect and enhance the functionality, quantity and quality of soils, including the protection of sites of geological importance*". These neutral impacts were identified due to either pipelines being buried or other effective implementation of mitigation measures taking place, no additional land take being required or options being located on brownfield sites. IST1 and ISB4 which were identified as having potential for minor negative effects on this objective due to potential for land take.

9.6.31 Neutral long-term effects have been identified for options ISMY1, ISMY2 and ISMY4 in relation to the population and health objective (8.1) "*maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing*". This is due to the limited scope for economic and social enhancement associated with these options. Options ISB4 and IST1 were identified as having potential for minor negative long-term impacts on this objective due to to potential impacts on recreation during the operation of these options.

9.6.32 Neutral long-term effects were also identified for all options in relation to the material assets objective (9.2) "*avoid negative effects on built assets and infrastructure*," mostly due to no anticipated ongoing disturbance on surrounding transport networks or built infrastructure during operation of the options within the WRZ.

9.7 Demand Options

9.7.1 The assessments of the demand options take the approach of grouping similar options under the option types set out in Ofwat's 'Water Resources Planning Tables – Instructions'[65]. Therefore, the SEAs include assessment of a number of individual demand options that fall within each option type, with potential effects associated with the option reported. Nuances between different options within the option type are outlined within the commentary where appropriate, and where information is available. The options within each option type are listed below. Full assessment details can be found in Environmental Report Appendix Q: SWW Demand Options – SEA Options Assessment (100107117-MMD-RP-SEA-019-D5).

9.7.2 A number of unconstrained options are still being considered by SWW but are not yet confirmed as feasible due to uncertainty on cost, uptake and size of benefit. It has not been considered proportionate to fully assess these options within the SEA at this time.

9.7.3 The Demand Options comprise:

- **HH: Metering -** This option includes all interventions involving household metering, including compulsory metering, metering optants, metering change of occupancy and other selective metering options. It covers the following option IDs:
  - HH_M_002
  - HH_M_003a_v1
  - HH_M_003b
  - HH_M_004
  - HH_M_006a
  - HH_M_006b
  - HH_M_006c
  - HH_M_007a
  - HH_M_007b
  - HH_M_008
- **HH: Water efficiency customer education / awareness -** This option includes interventions involving education and awareness raising programmes to improve customer water efficiency practices. It covers the following option IDs:
  - HH_E_013
  - HH_E_017
- **HH: Water audit -** This option includes interventions involving household water audits. It covers the following option IDs:
  - HH_A_002
  - HH_A_003
  - HH_A_004
  - HH_A_005
  - HH_A_006
  - HH_E_009
  - HH_E_010
- **HH: Retrofitting indoor water efficiency devices -** This option includes interventions which involve retrofitting old water devices to more efficient ones. It covers the following option IDs:

[65] Ofwat (2022) *Water Resources Planning Tables – Instructions (Version 5), Appendix A – Option Types*. Available at: https://www.ofwat.gov.uk/wp-content/uploads/2022/03/WRMP24-Table-instructions_2022_Final.pdf

  - HH_E_001
  - HH_E_004
- **HH: Other water efficiency (incentives) -** This option includes interventions involving water efficiency incentives. It covers two option IDs:
  - HH_I_001
  - HH_I_002
- **HH/NHH: Tariff -** This option (HH_T_001) involves the use of tariffs to motivate water efficiency and customer behaviour (Rising block tariff). The rate of water increases as the volume of consumption increases. Smart metering may be required to provide timely customer feedback to be most effective.
- **HH: Rainwater harvesting -** This option includes interventions involving household rainwater harvesting. It covers the following option IDs:
  - HH_N_001
  - HH_N_003
- **Distribution Options: Distribution mains and trunk mains replacement, pressure management, active leakage control and other leakage control measures -** This option includes all interventions involving reduced leakage for water efficiency. It covers the following option IDs:
  - LKG_01_ALC
  - LKG_02_IALC
  - LKG_03_ARMC
  - LKG_04_ARMO
  - LKG_05_ARCO
  - LKG_06_ALCRI
  - LKG_07_ARI
  - LKG_08_PAL
  - LKG_09_DMAMLT
  - LKG_10_CSPLR
  - LKG_11_DMASD
  - LKG_12_APM
  - LKG_13_PRT
  - LKG_14_TMARMC
  - LKG_14_TMARM
  - LKG_14_TMARC
  - LKG_15_TMAALC
  - LKG_16_TMFMZ
  - LKG_17_TMLG
- **Drought – water use restrictions -** This option includes interventions revolved around reducing drought across the region. It covers the following option IDs:
  - DRT_Dem_Lev1
  - DRT_Dem_Lev2
  - DRT_Dem_Lev3
  - DRT_Dem_Lev4
- **HH: Other water efficiency (policy) -** This option involves legislating the water labelling of relevant products as mandatory and managed by government. Only products performing at a

baseline level will be allowed on the market and referenced in the Building Regulations. This would require the development of labelling policy and the development/agreement on baseline standards, as well as the amendment of the relevant Building Regulations. This has now been mandated by Defra and will be implemented by Government in early 2025. It covers the following option ID:

  - HH_P_002

- **NHH: Water audit, retrofitting indoor water efficiency devices, water efficiency customer education / awareness -** This option includes all interventions involving non-household water audits. It covers the following option IDs:
  - NHH_A_001a
  - NHH_A_001b
  - NHH_A_001c
  - NHH_A_001d
  - NHH_A_001e
  - NHH_A_001f
  - NHH_A_001g
  - NHH_A_001h
  - NHH_A_001i
  - NHH_A_001j
  - NHH_A_001k
  - NHH_A_001li
  - NHH_A_001m
  - NHH_A_002
  - NHH_A_003a
  - NHH_A_003b
  - NHH_A_003c / NHH_A_004
  - NHH_A_003d
  - NHH_A_005
  - NHH_A_006 (NHH_A_001_golf)
  - NHH_A_007
  - NHH_E_005
- **NHH: Metering other selective -** This option includes interventions involving meter upgrades, increasing meter frequency and issuing water saving devices. It covers the following option IDs:
  - NHH_M_002a
  - NHH_M_002b
  - NHH_M_003
- **NHH: Water efficiency customer education / awareness -** This option includes interventions involving education and awareness raising programmes to improve customer water efficiency practices. It covers the following option IDs:
  - NHH_E_001
  - NHH_E_003
- **NHH: Other water efficiency (rainwater harvesting)** - This option (NHH_N_008) involves working with developers to develop rainwater harvesting systems to provide a non-potable supply for use within new commercial properties. Water is collected from roof runoff and a

sustainable drainage system is created. The collected water goes through a basic level of treatment. Rainwater harvesting is included in the development to meet planning conditions.

- **NHH: Water reuse -** This option (NHH_N_006) involves reusing treated wastewater effluent from industrial users as an alternative supply to the top 10 users. The reclaimed water could be used for industrial/commercial use rather than potable drinking water.

9.7.4 The above options have been assessed against the SEA objectives, using the Assessment Criteria guide questions (see **Section 7.2)** and Scoring Definitions (see **Annex 1**: **Appendix E**) to determine the expected nature and scale of effects. A summary of the effects against each Objective are presented below in **Table 9.6**, and discussed in the following section. Short-term (ST) construction effects and long-term (LT) operational effects are summarised separately due to the differing nature of effects.

9.7.5 It is acknowledged that demand options have undergone continuous development through the production of the draft WRMP24. The options outlined above are the options assessed as a result of the information available at the time of writing. Should any options be developed further, future reassessment would be undertaken and reported.

Table 9.6: Demand Option Summary of SEA Findings

Option Ref	ST / LT	SEA Topics															
		Biodiversity			Water			Soil	Air	Climate		Hist. Env	Landscape	Population and Health		Material assets	
		1.1	1.2	1.3	2.1	2.2	2.3	3	4	5.1	5.2	6	7	8.1	8.2	9.1	9.2
HH: Metering	ST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0
	LT	0	0	0	+ 0	0	+ 0	0	0	0	0	0	0	+	0	0	0
HH: Water efficiency	ST	0	0	0	0	0	0	0	0	0 -	0	0	0	0	0	0	0
	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HH: Water audit	ST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HH: Retrofitting devices	ST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0
	LT	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	+
HH: Other water efficiency (incentives)	ST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LT	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0
HH/NHH: Tariff	ST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LT	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0
HH: Rainwater harvesting	ST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Distribution options	ST	-	- 0	0	0	0	-	0 -	0	- 0	0	- 0	- 0	0	- 0	- 0	- 0
	LT	0	0	0	+	0	+	0	0	0	0	0	0	+	0	0	0
Drought – water use restrictions	ST	0	0	0	0	0	0	0	0	- 0	0	0	0	0	0	0	0
	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HH: Other water	ST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Option Ref	ST / LT	SEA Topics															
		Biodiversity			Water			Soil	Air	Climate		Hist. Env	Landscape	Population and Health		Material assets	
		1.1	1.2	1.3	2.1	2.2	2.3	3	4	5.1	5.2	6	7	8.1	8.2	9.1	9.2
efficiency (policy)																	
NHH: Water audit, retrofitting indoor water efficiency devices, water efficiency customer education / awareness	ST	0	0	0	0	0	0	0	0	0 -	0	0	0	0	0	-	0
	LT	0	0	0	+	0	+	0	0	0	0	0	0	+	0	0	+
NHH: Metering other selective	ST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0
	LT	0	0	0	+	0	+	0	0	0	0	0	0	+	0	0	+
NHH: Water efficiency customer education/awareness	ST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LT	0	0	0	+	0	+	0	0	0	0	0	0	+	0	0	0
NHH: Other water efficiency (rainwater harvesting)	ST	0	0	0	0	0	0	0	0	-	0	0	0	0	0	-	0
	LT	0	+	0	+	+	+	0	0	+	+	0	0	+	0	+	0
NHH: Water reuse	ST	0	0	0	0	0	0	0	0	-	0	0	0	0	0	-	-
	LT	**0**	**0**	**0**	**+**	**0**	**+**	**0**	**0**	**0**	**0**	**0**	**0**	**+**	**0**	**0**	**0**

Demand Options short-term (construction) effects

9.7.6 For the Demand Options, no potential major, moderate or minor positive short-term effects have been identified.

9.7.7 Similarly, no major or moderate negative short-term effects have been identified.

9.7.8 Potential minor negative short-term effects have been recorded for the distribution options in relation to the biodiversity objectives (1.1 and 1.2) to "*protect and enhance designated and non-designated ecological sites*" and to "*protect, conserve and enhance biodiversity, including priority species, vulnerable habitats and habitat connectivity*". This is due to the potential for construction works if leaks are found from detection works. Depending upon the site location of these options, there could be effects on biodiversity or ecological sites within the local area and to areas with priority species and vulnerable habitats. Some of the leakage options have been assessed as having neutral effects on objective (1.2), resulting in a split minor negative/neutral score for this objective. The neutral score is due to some options being small scale, and unlikely to affect biodiversity or habitats.

9.7.9 The distribution options were also assessed as having the potential for a minor negative short-term effect on objective (2.3) "*Deliver reliable and resilient water supplies*". This is associated with a potential temporary disruption to water supplies to local households when work is undertaken.

9.7.10 Both a minor negative and neutral score has been identified for objective (3) "*Protect and enhance the functionality, quantity and quality of soils, including the protection of sites of geological importance"* in relation to the distribution options. The minor negative effects are associated with the potential for some options to require excavation works which may affect soil quality. The options which scored neutral involve less intrusive works.

A potential minor negative short-term effect has been identified for NHH: Other water efficiency (Rainwater Harvesting) and NHH: Water reuse in relation to the climate objective (5.1) "*reduce embodied and operational carbon emissions*", in response to the new infrastructure required and the subsequent increase in embodied carbon and vehicle movements on site. Further options including HH: Water efficiency customer education/ awareness, distribution options, drought – water use restrictions and NHH: Water audit were also identified as having potential for minor negative short-term effects on objective (5.1), however the score was split with neutral effects as some options are much smaller scale and will have a far lower embodied carbon.

9.7.11 Both a minor negative and neutral score has been assessed for objective (6) "*Conserve, protect and enhance the historic environment, including archaeology"* in relation to the distribution options. The minor negative effects are associated with the potential for some options to require construction works which may affect the historic environment, depending on location. The options which scored neutral do not involve construction works.

9.7.12 Both a minor negative and neutral score have been assigned for objective (7) "*Conserve, protect and enhance landscape, townscape and seascape character and visual amenity"* in relation to the distribution options. The minor negative effects are associated with the potential for some options to require construction works. Construction plant, equipment and vehicles are likely to have negative impacts on visual receptors such as nearby residents and house owners. The options which scored neutral do not involve construction works.

9.7.13 Both a minor negative and neutral score has been assessed for objective (8.2) "*Maintain and enhance tourism and recreation"* in relation to the distribution options. The minor negative effects are associated with the potential for increased vehicular movement and road closures causing congestion, particularly in areas which are tourist hot-spots. The options which scored neutral do not involve construction works.

9.7.14 Options HH: Metering, HH: Retrofitting indoor water efficiency devices, NHH: Water audit, NHH: Metering other selective, NHH: Other water efficiency (Rainwater harvesting) and NHH: Water reuse recorded a potential minor negative short-term in relation to the material assets objective (9.1) "*minimise resource use and waste production*". This is likely a result of the requiring use of materials and energy for completion, and the generation of waste. Distribution options were identified as having a split minor negative and neutral score for this objective. The minor negative effects are due to the causes listed above; the neutral impacts relate to options which have no construction.

9.7.15 Potential minor negative effects were identified for option NHH: Water reuse in relation to objective (9.2) "*Avoid negative effects on built assets and infrastructure*". This is because the option may involve some minor works to underground assets such as pipelines beneath roads and pavements. There is potential for existing road infrastructure to be temporarily affected by works. Distribution options has a split minor negative/ neutral effect for this objective. Minor negative effects are associated with the potential for works to temporarily disrupt built assets, including transports links, due to increased congestion. A neutral score has been identified for options which do not involve construction.

9.7.16 Neutral short-term effects have been recoded across all objectives for the following options; HH: Water audit, HH: Other water efficiency, HH/NHH Tariff, HH: Rainwater harvesting, HH: Other water efficiency (policy) and NHH: Water efficiency customer education/ awareness. This is due to these options not requiring construction works.

Demand Options long-term (operational) effects

9.7.17 For the Demand Options, no potential major or moderate positive long-term (operation) effects have been identified.

9.7.18 Potential minor positive long-term effects have been identified for the Demand Options. These include minor positive long-term effects for NHH: Other water efficiency (Rainwater harvesting) for the biodiversity objective (1.2) "*protect, conserve and enhance biodiversity, including priority species, vulnerable habitats and habitat connectivity*". This is attributed to a likely reduction in water abstraction enhancing biodiversity and habitat connectively in associated waterbodies.

9.7.19 For distribution options, NHH: Water audit, NHH: Metering other selective, NHH: Water efficiency customer education/ awareness, NHH: Other water efficiency (Rainwater harvesting) and NHH: Water reuse, potential minor positive long-term effects have been recorded for the water objectives (2.1 and 2.3) to "*protect and enhance the quality of the water environment and water resources*" and "*deliver reliable and resilient water supplies*". This is mainly attributed to the options likely reducing water consumption within the region and decreasing water losses within businesses, likely leading to decreased in water consumption, respectively. HH: Metering also scored minor positive for these objectives; however, the score was split with a neutral effect as some metering options are expected to have a negligible effect on the water objectives. Additionally, NHH: Other water efficiency (Rainwater harvesting) has been identified as having a minor positive long-term effect on objective (2.2) "*increase resilience and reduce flood risk"* due to rainwater harvesting systems lessening the quantity of water entering drainage systems, therefore reducing the effects of flooding.

9.7.20 For option NHH: Other water efficiency (Rainwater harvesting) potential minor positive long-term effects were recorded in relation to both climate objectives (5.1 and 5.2), to "*reduce operational carbon emissions*" and to "*reduce vulnerability to climate change risks and hazards*". These are a result of the options being likely to reduce the volume of water being pumped and treated from SWW supplies and the management of increased water run-off from storm events (which are likely to increase in frequency due to climate change), reducing the impacts of surface water flooding.

9.7.21 In response to the population and health objective (8.1) "*maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing*", all Demand Options, with the exception of HH: Water efficiency customer education/ awareness, HH: Water audit, HH: Rainwater harvesting, Drought - water use restrictions and HH: Other water efficiency (policy), which scored neutral, potential minor positive long-term effects were identified. This was mostly due to promoting water efficiency and encouraging a reduction in water consumption.

9.7.22 Options NHH: Other water efficiency (Rainwater harvesting) recorded potential minor positive long-term effects for the material assets objective (9.1) "*minimise resource use and waste production*", due to the likely decrease in reliance on portable water supply therefore an increased volume of portable water available to the region.

9.7.23 Potential minor positive long-term effects were identified for HH: Retrofitting indoor water efficiency devices and NHH: Water audit for the material assets objective (9.2) "*avoid negative effects on built assets and infrastructure*", as a result of the reduce maintenance and improved operational efficiency of the built assets associated with the options.

9.7.24 For the Demand Options, no potential major, moderate or minor negative long-term (operation) effects have been identified.

9.7.25 Neutral long-term effects have been recoded across all objectives for the following options; HH: Water efficiency customer education/ awareness, HH: Water audit, HH: Rainwater harvesting, Drought -water use restrictions and HH: Other water efficiency (policy). This is due to the non-intrusive nature of the works and not delivering substantial water saving or wider environmental opportunities, when assessed as a singular measure.

9.8 High Level Screening Options

HLS assessments were undertaken for 15 new supply options and 14 new drought options. A Red/Amber/Green (RAG) approach has been implemented to identify options with high environmental risks. The RAG assessment considers both the option's short-term (construction effects) and long-term (operational effects) on SEA topics included within the RAG criteria. Full SEA and technical environmental assessments will be undertaken Autumn 2023 for inclusion in the updated environmental report December 2023. The results of the HLS are presented in the Table 9.7 and Table 9.8 below.

Table 9.7: High Level Screening Supply Options Summary

Option	Air Quality	Biodiversity, Flora and Fauna								Historic Environment					Landscape		Soils			Water			Climatic Factors
		SPA	SAC	RAMS AR	SSSI	Ancient Woodland	NNR	LNR	Priority Habitat	Listed Buildings	Scheduled Monuments	WHS	Registered Parks and Gardens	Registered Battlefields	AONB	National Parks	Agricultural Land	Authorised Landfill	Historic Landfill	SPZ	NVZ	Flood Zone	
BNW16																							
BNW18																							
BNW19																							
COL16																							
COL22																							
COL23																							
COL24																							
COL25																							
COL26																							
COL28																							
R0A20																							
ROA21																							
WIM14																							
WIM15																							
WIM16																							

Table 9.8: High Level Screening Drought Options Summary

Option	Air Quality	Biodiversity, Flora and Fauna								Historic Environment					Landscape		Soils			Water			Climatic Factors
		SPA	SAC	RAMS AR	SSSI	Ancient Woodland	NNR	LNR	Priority Habitat	Listed Buildings	Scheduled Monuments	WHS	Registered Parks and Gardens	Registered Battlefields	AONB	National Parks	Agricultural Land	Authorised Landfill	Historic Landfill	SPZ	NVZ	Flood Zone	
dB1																							
dB2																							
dCS1/E																							
dCS11/E																							
dR1																							
dR2																							
dR3																							
dR4																							
dR5																							
dRS15/E																							
dRS18/E																							
dW1																							
dW2																							
dW3																							
dW4																							

Five supply options (COL22, COL24, COL25, ROA20 and ROA21) and one drought option (dRS15/E) have potential for effects on air quality. This is because the options are located within 500m of an AQMA. The remaining options have low potential for effects.

Four supply options (BNW18, BNW19, COL22 and COL23) have potential for significant effects on SPAs. This is due to the options being located within 400m of an SPA and linkages between the sites. A further five supply options have been identified as having potential for effects because they are located within 400 - 5000m of an SPA.

Two drought options (dB1 and dRS15/E) have been identified as having potential effects on SPAs. Option dB1 is located approximately 4000m north of the Dorset Heathlands SPA, which is also identified as a GWDTE. Option dRS15/E is located upstream from the Tamar Estuaries Complex SPA, meaning there is potential for effects.

BNW18, BNW19, COL22, COL23, WIM15, dR3, dR5 and dRS15/E are located within 400m of an SAC, meaning they have potential for significant effects.

A further eight supply options and six drought options have potential for effects on SACs, including BNW16, COL16, ROA20, WIM14, dB1 and dCS1/E. This is because they are located within 400 – 5000m of an SAC.

Two supply options (BNW18 and BNW19) are located within 400m of a Ramsar site, meaning they have potential for significant effects. A further two supply options (BNW16 and WIM14) and one drought option (dB1) are located within 400 – 5000m of a Ramsar site and have potential for effects.

Three supply options (BNW18, COL23 and WIM15) have potential for significant effects on SSSIs. This is because the options directly encroach upon SSSI(s) and/or have potential for major adverse effects on linkages to the designated site. A further five drought options have potential for significant effects because they directly encroach or are located adjacent to a SSSI.

Eleven supply options, including BNW16, BNW19 and COL16, have potential for effects on SSSIs because they are located within a SSSI Impact Risk Zone. Additionally, seven drought options have potential for moderate/minor effects on linkages to SSSIs.

Seven supply options (including COL22, COL23 and COL24) and one drought option (dRS15/E) encroach upon ancient woodlands and therefore have potential for significant effects. Furthermore, three supply options (COL16, COL28 and WIM16) and seven drought options (including dB1, dR4 and dR5) are located within 500m of an ancient woodland and therefore have potential for effects.

All supply and drought options have no direct encroachment upon LNRs and NNRs and therefore have low potential for effects.

There are ten supply options and seven drought options which have potential for significant effects on priority habitats. This is due to the options, including COL22, ROA20, WIM14, dCS11/E, dR2 and dR4, requiring direct landtake from priority habitats. Four supply options (BNW18, BNW19, COL16 and COL28) and seven drought options (including dB1, dRS18/E and dW4) are located within 500m of priority habitat(s) and therefore have potential for effects.

Four supply options (COL22, COL24, WIM14 and WIM15) and one drought option (dRS15/E) are anticipated to have direct impacts on Listed Buildings and therefore have potential for significant effects. A further nine supply options (including BNW18, COL16, ROA20 and WIM16) and ten drought options (including dB1, dB2 and dR2) are located within 500m of Listed Buildings and have potential for effects.

Three supply options (COL24, COL26 and WIM15) and three drought options (dR5, dRS15/E and dW1) have potential for significant effects because they directly encroach upon Scheduled Monuments. Five supply options (including COL22, ROA20 and WIM16) and one drought option (dR4) have potential for effects because they are located within 500m of a Scheduled Monument.

Options COL23 and dRS15/E have potential for significant effects on a World Heritage Site. This is because the options directly encroach upon a World Heritage Site. Two supply options (COL22 and COL26) are located within 500m of a World Heritage Site, therefore have potential for effects. The remaining drought options have low potential for effects on a World Heritage Site because they are located over 500m from this heritage feature.

Four supply options (COL26, ROA20, ROA21 and WIM15) and two drought options (dCS1/E and dSC11/E) directly encroach upon Registered Parks/Gardens and have potential for significant effects. Options COL24 and COL28 also have potential for effects because they are located within 500m of a Registered Park/Garden. The remaining drought options have low potential for effects.

Option COL26 has potential for significant effects on a Registered Battlefield. This is because the option directly encroaches upon a Registered Battlefield. Option dCS11/E also has potential for effects because it is located within 500m of a Registered Battlefield. The remaining supply and drought options have low potential for effects.

Four supply options (COL22, COL23, ROA20 and ROA21) and six drought options (including dB2, dR2, dW2) are located within 200m of an AONB, and therefore have potential for effects. The remaining supply and drought options have low potential for effects.

Four supply options (COL22, COL25, ROA20 and ROA21) and four drought options (dR3, dR4, dR5 and dW4) have potential for effects because they are located within 200m of a National Park. The remaining supply and drought options have low potential for effects.

Eight supply options (including BNW16, COL23 and ROA21) and one drought option (dW1) have potential for effects because they are located within Grade 1 or Grade 2 Agricultural Land. The remaining supply and drought options have low potential for effects because they are located within other or unclassified land.

Five supply options (including COL22, COL25 and ROA20) and one drought option (dR4) have potential for effects because they are located within 200m of an Authorised Landfill Site. The remaining supply and drought options have low potential for effects on Authorised Landfill Sites.

Four supply options (COL22, COL26, ROA20 and ROA21) and one drought option (dR4) are located within 200m of a Historic Landfill Site and therefore have potential for effects. The remaining supply and drought options have low potential for effects on Historic Landfill Sites.

Four supply options (BNW18, ROA20, ROA21 and WIM14) and five drought options (including dB1, dB2 and dW1) have potential for effects because they are located within Zone 1 or Zone 2 of SPZs. The remaining supply and drought options have low potential for effects on SPZs.

Four supply options (COL16, WIM14, WIM15 and WIM16) are located within a NVZ and therefore have potential for effects. Five drought options also have potential for effects as they are located within an NVZ. These include options dB1, dB2 and dR2. The remaining supply and drought options have low potential for effects because they are located outside of an NVZ.

Eleven supply options (including BNW18, COL22 and WIM16) and eight drought options (including dCS1/E, dCS11/E and dR2) have been identified as having potential for effects due to their locations being within Flood Zone 2 or 3. The remaining supply and drought options have low potential for effects because they are located within Flood Zone 1.

All supply options are likely to result in embodied and/or operational carbon emissions. Ten of these options, including BNW16, COL22, ROA21 and WIM15, are expected to require substantial new infrastructure or ongoing energy consumption, and therefore have potential for significant effects. The remaining supply options require minor infrastructure or ongoing energy consumption. They also have potential for effects on climatic factors.

Three drought options (dR2, dR4 and dR5) have potential for significant effects because they require substantial new infrastructure or ongoing energy consumption. Nine drought options (including dB1, dR3 and dW2) also have potential for effects due to the requirement for minor new infrastructure or ongoing energy consumption. Two drought options require no new infrastructure or ongoing energy consumption and therefore have low potential for effects. These are dCS11/E and dW3.

9.9 Strategic Resource Options Summary

9.9.1 A summary of the environmental assessments undertaken for the SROs is provided below. This includes; BNW7 (Mendip Quarries), BNW8 (Poole Effluent Recycling and Transfer Scheme), and BNW17 (Cheddar 2). Cheddar Two also has three further options under development (WIM13, WIM16 and ROA19) which involve the transfer of water south-eastwards towards Wessex Water and onwards into SWW's region, however BNW17 is the option which is currently progressing within the Regulator's Alliance for Progressing Infrastructure Development (RAPID) framework.

Mendip Quarries

9.9.2 The Mendips Quarry scheme consists of six elements. These are:

- New intake pipeline from Newton Meadows;
- Mendip Reservoir; and
- Four water transfer options:
  - Kennet and Avon Canal;
  - Service Reservoir near Warminster;
  - River Stour; and
  - Chewton Mendip.

9.9.3 For biodiversity, major negative short-term effects were recorded for all six elements of the scheme, predominately due to effects on Severn Estuary Ramsar, Severn Estuary SPA, Severn Estuary SAC and Mendip Woodland SAC, likely due to the predicted changes to the water table. Additionally, due to the Mendip Woodland SAC being located directly adjacent to the construction boundary of the Mendip Reservoir, the scheme design should be considered to minimise the potential effect on this site.

9.9.4 Major negative long-term effects were also identified for all options, with the exception of Service Reservoir near Warminster and Chewton Mendip, which both scored neutral, and Mendip Reservoir, which scored major positive as well as major negative effects in relation to the biodiversity objective "*protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity"*. The major negative long-term effects were anticipated as a result of predicted changes to the water table. The major positive long-term effects identified for Mendip Reservoir are attributed to the new natural habitat for birds likely created as a result of the scheme.

9.9.5 Natural capital stocks at all six scheme element locations have the potential to be lost as part of the scheme, including loss of ancient woodland and orchards. Additionally, most elements of the scheme are likely to result in some loss of BNG habitat units, including cropland, grassland and

lakes, anticipated due to removal of habitats during construction and the time required for compensatory habitat to reach maturity.

9.9.6 The INNS assessment concludes that in regard to the intake pipeline from Newton Meadows, significant treatment will be required to prevent the transfer of INNS from the River Avon to Mendip Reservoir. Additionally, public and recreational use of Mendip Reservoir may pose a risk of the spread of INNS, which has potential to spread to other water bodies via water transfer. Further investigation is required to determine potential INNS risks associated with the raw transfers.

9.9.7 Three of the six elements of the Mendips Quarry scheme have potential to affect one waterbody each. The WFD Level 1 identified potential for moderate or high-level effects as a result of the new intake pipeline construction on Bristol Avon, the Mendip Reservoir construction works on the Mendip groundwater due to potential interaction between the quarry and local groundwater, and the River Stour outlet due to increased discharge of water of a different quality to this waterbody.

9.9.8 In relation to carbon and climate resilience, the six elements of the scheme recorded various levels of effects. For the intake pipeline from Newton Meadows, minor negative long-term effects are anticipated due to the abstraction affecting the climate resilience of the local community.

9.9.9 For the Mendips Reservoir, moderate negative short-term effects were predicted in relation to carbon generation due construction activities and to the use of materials to construct new infrastructure.

9.9.10 The Intake pipeline from Newton Meadows is anticipated to have minor negative long-term effects due to the abstraction of water which may affect the resilience of the local environment to climate change. In contrast, in terms of the four water transfer options, Kennet and Avon Canal and River Stour are anticipated to have minor positive long-term effects in relation to climate resilience, due to the increased flow into the outlet water courses. The other two transfer options are likely to have neutral long-term effects in relation to climate resilience.

9.9.11 In relation to historic environment and landscape, the creation of Mendips Reservoir is likely to improve the visual amenity and setting of the current landscape from the existing quarry. Additional, for landscape in relation to Service Reservoir near Warminster, minor negative long-term effects are anticipated, due to the installation of above-ground infrastructure located within the Cranborne Chase & West Wiltshire Downs AONB. All other options are predicted to have neutral long-term effects.

9.9.12 Additionally, for Mendip Reservoir, major positive long-term effects are anticipated for population and health, as the reservoir will have major beneficial effects during operation, due to the new recreational opportunities it provides to the public.

Poole Effluent Recycling & Transfer Scheme

9.9.13 The Poole Effluent Recycling & Transfer (PERT) Scheme is to divert up to 30Ml/d of final effluent from Poole Sewage Treatment Works (STW) to the River Stour via a new pipeline, water recycling plant and a wetland. The additional water discharged to the river would then be re-abstracted at Longham lakes from where it will integrate with South West Water's existing supply system. The solution provides multiple environmental benefits, in addition to providing a drought resilient water source. The discharge will improve flows along approximately 15km of the river Stour when natural flows are low, reduce the amount of effluent entering Poole Harbour and enable abstractions on the River Avon to be reduced.

9.9.14 In the HRA, a total of 14 European sites were screened based on proximity (within 10 km) and hydrological connectivity to the PERT Scheme. Likely significant effects at Stage 1 Screening were identified on five European sites during construction works. This included Dorset Heathlands SPA and Ramsar, Dorset Heaths SAC and Avon Valley SPA and Ramsar site. No adverse effects on European site integrity were identified with the implementation of mitigation measures to limit the effect from air and dust emissions and anthropogenic disturbance on qualifying habitats and species respectively. Likely significant effects were also identified for 10 European sites during operation of the PERT scheme. This included River Avon SAC, Poole Harbour SPA and Ramsar, Avon Valley SPA and Ramsar, Solent and Dorset Coast SPA, Solent Maritime SAC, Solent and Southampton Water SPA and Ramsar and South Wight Maritime SAC. No adverse effects on European site integrity were identified based on currently available information. However, uncertainty remains regarding scheme design and composition of treated effluent for discharge into the River Stour. Therefore, the appropriate assessments will need to be reviewed and updated once more detailed information becomes available.

9.9.15 A total of c. 16 ha of temporary habitat loss and c. 5.5 km of temporary hedgerow loss and a total of c. 2 ha of permanent habitat loss and c. 0.07 km of permanent hedgerow loss is calculated for the whole PERT scheme, in the absence of off-site mitigation. However, the proposed wetland area creation/enhancement would deliver a c. 16 % net gain for the permanent construction impact which will be achieved via change in associated grassland habitat condition from moderate to high status. Areas of land which may be suitable for mitigation have also been identified using scoring criteria with the highest scoring sites potentially offering more effective, functioning mitigation. The overall environmental benefits in relation to climate regulation, natural hazard regulation and agriculture ecosystem services over the 80-year lifespan of the scheme equate to circa £300,000 (not including the monetary cost of land acquisition and management for the required mitigation). The assessment approach so far has been high level and it will be refined at Gate 3 following stakeholder engagement, refinement of design and surveys to determine current habitat conditions.

9.9.16 During the operation of the scheme, the discharge of treated effluent from Poole STW via a Water Recycling Centre (WRC) and into the River Stour does not present an INNS transfer risk. The treatment process will prevent onward transmission of INNS, provided that open storage does not occur prior to or following treatment at the WRC. The abstraction of water and transfer via the proposed pipeline from the River Stour to Longham Lakes poses a risk in relation to the transfer of INNS, as raw untreated water is being transferred. The increased volume of transfer resulting from the implementation of the scheme may result in an increased propagule pressure upon Longham Lakes. However, the existing connection between the River Stour and Longham Lakes, both as a result of abstraction from the Stour and relative location of the lakes, has likely resulted in the INNS community of Longham Lakes being similar to the River Stour. As such the relative impact of the operation of the raw water transfer aspect of the scheme is perceived to be minor at this stage. However, confidence in this assessment is limited due to the lack of monitoring data available for the subject area, so that will be collected at the next stage.

9.9.17 The Level 1 WFD assessment screened the Stour (Middle d/s of Pimperne Brook) water body as compliant and Stour (Lower) water body as non-compliant according to the All Company Working Group (ACWG) listed activities. However, for the purposes of the current assessment at Gate 2 of scheme development, they were both carried forward to initial Level 2 assessment. The initial Level 2 assessment identified that the scheme presents potential short-term and long-term negative effects in terms of WFD non-compliance to the Stour (Middle) and Stour (Lower) water bodies for both fish, certain chemicals and macrophytes and phytobenthos combined. However, it must be caveated that there are limited data available meaning data confidence is still considered to be low, and that this assessment has been based on the current understanding of the scheme operating pattern and current water quality permitting which may

be subject to change. Also, any additional mitigation measures to be developed at the subsequent Gate 3 design stage have not yet been considered.

9.9.18 Predicted short-term and long-term effects for the historic environment and landscape include effects of the setting and landscape character, and temporary effects on Brog Street/Sleight Lane Conservation Area.

9.9.19 In terms of population and human health, short-term effects are likely including interfaces with existing infrastructure, transport infrastructure and congestion. Long-term effects include a local water supply that is drought resilient.

9.9.20 For embodied carbon, short-term effects are anticipated in relation to use of new materials and construction energy and fuel usage. Long-term effects are also likely in relation to operational energy consumption.

Cheddar 2

9.9.21 The Cheddar 2 SRO has been split into four options including

- BNW17 Cheddar 2 to Summerslade
- WIM13 Cheddar 2 to Parsonage
- WIM18 Cheddar 2 to Bickham Moor
- ROA19 – Cheddar 2 to Prewley

9.9.22 The Cheddar 2 to Summerslade option has been outlined below.

9.9.23 The scheme will involve construction of a second reservoir at Cheddar to be filled from Cheddar springs and the river Axe, under Bristol Water's existing licences. Water would be treated at a new WTW at Honeyhurst before being transferred via a 55km pipeline to a strategic service reservoir in Wessex Water's groundwater area in the east of their region.

9.9.24 Environmental assessments were carried out for the Cheddar 2 scheme, the results of which are summarised below.

9.9.25 Based on the WFD compliance assessment, it was concluded that the Cheddar 2 Source and Transfer scheme is potentially non-compliant against WFD regulations following both Level 1 and Level 2 Assessment.

9.9.26 The Level 2 assessment concluded that the Axe – Cocklake to Brean Cross Sluice WFD waterbody was non-compliant relating to deterioration in phosphate status, and Cheddar Yeo – source to conf Stubbingham Rhyne was non-compliant due to potential deterioration in fish, macrophytes and phytobenthos and macroinvertebrate statuses, and for impediments to good status for macrophytes and phytobenthos and phosphate.

9.9.27 A total of 15 European sites were screened in during the HRA, based on proximity (within 10km) and hydrological connectivity to the scheme. The results of the assessment are included below.

9.9.28 During informal Stage 1 Screening, likely significant effects were identified for 12 European sites during the construction phase, and for 10 European sites during operation. These sites were then carried forward to a Stage 2 Appropriate Assessment, where it was assessed on impacts to bats, birds, fish and habitats, where a range of potential impacts were identified. The assessment did however note that the appropriate assessment will need to be reviewed and updated once more detailed information becomes available.

9.9.29 The Stage 2 Appropriate Assessment also considered the need for additional mitigation measures to avoid an adverse effect on site integrity, such as measures to limit impacts. However, adverse effects cannot be ruled out at this stage on all sites considered at Stage 2

Appropriate Assessment as a result of direct habitat loss, deterioration (rhyne/ditch network), air emissions and noise disturbance.

9.9.30 A preliminary assessment of BNG and NC losses and benefits of the Cheddar 2 scheme has been undertaken, considering assessment of habitat loss, and an assessment of the habitat reinstatement required. Where necessary, off-site mitigation has also been included.

9.9.31 A total of 210.75ha of temporary habitat loss and 10.3km of temporary hedgerow loss was calculated across the scheme, which, in the absence of off-site mitigation, would result in a net change of -21.32% BNG area units and -16.32% of hedgerow units.

9.9.32 Areas of land which may be suitable for mitigation have been identified using scoring criteria with the highest scoring sites potentially offering more effective, functioning mitigation.

9.9.33 The INNS assessment conducted for the scheme considers INNS risk associated with construction and operation of the Cheddar 2 SRO.

9.9.34 A total of 41 INNS of interest were recorded during the baseline period within the NBN atlas across the whole River Axe catchment. The most frequently recorded species within this area is the aquatic plant species Nuttall's Waterweed (Elodea nuttallii), with other species also being identified within the catchment.

9.10 Drought Option Environmental Assessment Reports (EARs)

Hawk's Tor Drought Permit Application 2022

9.10.1 The Hawk's Tor drought permit scheme will allow water to be abstracted from the lake for public water supply, whilst maintaining the maximum drawdown limit established in previous permits. The aim of this scheme is to support the storage recovery of Colliford Reservoir.

9.10.2 A compensation flow will be introduced from the lake into Warleggan River. This will mitigate negative impacts on the downstream environment and protect aquatic wildlife within the lake.

9.10.3 SWW commissioned an Environmental Assessment Report (EAR) which provides a desktop assessment of the potential environmental impacts that may occur as a result of the scheme. The report draws upon numerous sources to understand the likely impacts and provides justification for proposed interim monitoring and mitigation measures.

9.10.4 SSSIs are not considered to be sensitive to decreased water levels in the Pit. Groundwater is not anticipated to be adversely affected. However, piezometers will be monitored in the vicinity of the scheme to measure groundwater quality and allow the mitigation of risks affecting wider designated sites.

9.10.5 The scheme is not considered likely to cause adverse effects on water quality in either Hawk's Tor or Colliford Reservoir.

9.10.6 The compensation flow will prevent adverse effects on macrophytes, phytobenthos and macroinvertebrates.

9.10.7 Negligible impacts on fish species are anticipated as the Pit will remain at a depth suitable to support fish species present.

9.10.8 Within the wider catchment, wetland species listed in the Habitats Directive were recorded. These species would require protection and conservation assistance through EC legislation if found present in any further assessment of Hawk's Tor Pit. Several bird species listed in the Habitats Directive are also likely to be recorded at Hawk's Tor Pit.

9.10.9 The overall significance of impact of the drought permit on landscape and recreational value is minor.

9.10.10 The overall significance of impact on archaeology and cultural heritage value is expected to be negligible.

Blackpool Pit Abstraction Licence

9.10.11 SWW propose to apply for a permanent abstraction licence to abstract water from Blackpool Pit to support the recharge of Colliford Reservoir.

9.10.12 The abstracted water will be transferred via a new pipeline to join the existing pipeline between Restormel abstraction on the River Fowey and Colliford Reservoir.

9.10.13 The licence will operate on an annual basis, typically occurring between the beginning of April and the end of October. The daily maximum abstraction will be 12Ml/d and the annual maximum volume will be 2,568Ml/d.

9.10.14 SWW commissioned an EAR which provides details of baseline conditions, assesses potential impacts from the scheme, and provides an Environmental Monitoring Plan. The EAR considers several waterbodies, including Blackpool Pit, Colliford Reservoir, Gover stream and Austell River.

9.10.15 Impacts of the abstraction licence on the hydrology and surrounding hydrogeology of Blackpool Pit are predicted to be of low magnitude. Impacts on the water quality of Blackpool Pit were predicted to be of negligible magnitude.

9.10.16 Impacts on receptors at Blackpool Pit were predicted to be of minor or negligible significance, except for impacts on phytoplankton and fish which were assessed as uncertain due to a lack of data.

9.10.17 Impacts of the abstraction licence on water quality and INNS at Colliford Reservoir due to the transfer of water were assessed as minor or negligible.

9.10.18 The proposed abstraction licence will not impact flows, habitats, and ecology of the Gover stream because the Pit and the stream are considered to be naturally hydrologically separated.

9.10.19 Mitigation measures and monitoring has been recommended because of the limited amount of baseline data and uncertainty inherent in some of the assessments.

Park Lake Drought Permit Application 2022

9.10.20 The Park Lake Drought Permit Application will increase the total volume of water which can be abstracted from the lake, allowing the lake to be held at a lower level for a longer period. The abstraction will be increased from 8Ml/d to 14Ml/d.

9.10.21 The water body is currently used for public water supply and has a clear set of operating parameters including a maximum drawdown and level monitoring designed to manage the environmental impacts of abstraction.

9.10.22 The EAR provides a desktop assessment of the potential environmental impacts that may occur. The report draws upon numerous sources to understand the likely impact of the increase in abstraction and to provide justification for proposed interim monitoring and mitigation measures.

9.10.23 Aquatic life within the lake is unlikely to be significantly affected by the permit. The lake and the adjacent stream are hydrologically isolated, as such there will be no impact on downstream communities.

9.10.24 Water transferred from Park Lake into Colliford Reservoir will have similar chemical and biological characteristics, and as such is unlikely to adversely impact the aquatic life of the reservoir.

9.10.25 SWW will nevertheless implement a range of monitoring and mitigating actions to understand any changes which do arise from the proposed permit.

Porth Reservoir and Rialton Intake

9.10.26 Due to the period of extended dry weather and exceptional shortage of rain affecting the UK in 2022, SWW is seeking a drought permit to supplement supply of water to the Newquay area at times of prolonged drought.

9.10.27 SWW are progressing engineering works to restart the abstraction from the River Porth, including an unchanged total daily abstraction limit of 8.196 Ml/d, and an increase in compensation flow from Porth Reservoir into Porth Stream from 1.591Ml/d to 5.27Ml/d.

9.10.28 Additionally, SWW will initially operate a temporary constraint to stop abstraction, whilst maintaining compensation flows, if reservoir levels in Porth drop below 40%.

9.10.29 The EAR provides an assessment looking at the magnitude of impact, receptor sensitivity and significance of impact. Potential impacts were assessed in relation to hydrology; water quality; ecology; designated sites; heritage; landscape; and tourism and recreation.

9.10.30 There is potential for the water dependant habitats of St Columb County Wildlife Site (CWS) to degrade due to any changes in the abstraction regime at Porth Stream. The sensitivity of this receptor is considered ‘High’.

9.10.31 Due to the high level of tourist activity in the area and the popularity of Porth Reservoir for recreational activities, the sensitivity of tourism and recreation in the area is determined to be medium, and the impact considered to be ‘Medium’.

9.10.32 Further ecological monitoring is recommended following the review of existing ecological data for the site, as the impact of the drought permit on aquatic and terrestrial receptors is considered largely ‘uncertain’.

Stannon Lake Abstraction Licence

9.10.33 SWW is proposing a permanent abstraction licence change for Stannon Lake, consisting of an increase to the daily abstraction limit from 4Ml/d to 8Ml/d and replacing the annual abstraction limit from 1,464Ml to 2,928Ml. These measures would be permanent.

9.10.34 The EAR assesses the new scenario and potential cumulative effects on the environment and ecology. The option was assessed looking at the magnitude of impact of pathways, receptor sensitivity and significance of impact.

9.10.35 The EAR identified major significance of impacts on macroinvertebrates, Atlantic salmon, brown/sea trout, bullhead and lamprey spawning and lamprey juvenile life stages and Moderate significance of impacts on Phytobenthos and other fish species/life stages within the Stannon Stream waterbody.

9.10.36 The report recommends that further monitoring should be considered to reduce uncertainty to inform a revision of this environmental assessment.

Restormel Abstraction License Change

9.10.37 SWW would like to explore two alternative abstraction licence scenarios at Restormel. Both scenarios represent a change to the annual limit of abstraction, and not the daily maximum

abstraction condition. These scenarios include a daily maximum abstraction of 110Ml/d with an annual abstraction limit of 35,900Ml and a Hands-off Flow (HOF) of 104.28Ml/d. A daily maximum abstraction of 110Ml/d with an annual abstraction limit of 35,900 Ml and a HOF of 109.73Ml/d.

9.10.38 This assessment is undertaken by looking at the magnitude of impact of pathways, receptor sensitivity and significance of impact. The EAR examines how the proposed abstraction licence at Restormel (the source) will affect the physiochemical environment (the pathways) and then considers how ecology and other features will respond to changes in those pathways.

9.10.39 The magnitude of impact of the proposed abstraction on river flows was Medium for St Neot, the Siblyback stream, and the Fowey waterbodies.

9.10.40 Moderate impacts were identified for Macroinvertebrates from late spring to early autumn, as this does not overlap with the period of highest abstraction October to March, overall impact was deemed to be Minor. Moderate impacts were also identified for Macrophytes during summer months. Likewise, as this does not overlap with the period of highest abstraction, overall impact was deemed to be minor.

9.10.41 The assessment recommends additional monitoring in order to build on the existing assessment of the scenarios.

9.11 Informal HRA Findings

9.11.1 The informal HRA Report has been prepared to support the SWW WRMP24 (**Annex 2: Appendix H**)). The HRA has been undertaken at a strategic scale to provide an indication of potential effects on relevant designated sites (Habitats Sites) to identify significant constraints and assist with the option shortlisting process. This HRA uses an iterative process, involving two stages:

- Screening, and
- Appropriate Assessment (AA).

9.11.2 The screening stage used a distance-based threshold of 10km based on the premise that Natural England's SSSI Impact Risk Zones extend to a maximum of a 10km radius. This threshold was extended where appropriate when impact pathways were identified. The AA stage uses a worst-case scenario approach regarding significant effects on Habitats Sites. This stage of the HRA has included the options in which potential Likely Significant Effects (LSEs) are uncertain, in addition to those which have had potential LSEs identified at the screening stage.

9.11.3 Across the five WRZs, 38 supply options were scoped in as part of the HRA screening process. The HRA presents the findings for each of these 38 options (including three SROs). A further three SROs have been identified as part of the updated dWRMP development. These additional SROs are at an early stage of development and, at the time of writing (September 2023), have not undergone environmental assessments. No demand options required an HRA. 25 options were identified as having potential LSEs on one or more Habitat Sites and therefore have been identified as requiring AA stage assessment. The HRA findings are presented in **Annex 2: Appendix H**.

9.11.4 Six supply options within the BVP were assessed within the HRA in-combination assessment, as these had undergone a full HRA assessment. The outstanding supply and drought options within the BVP will be fully assessed and incorporated into the in-combination assessment within the next revision of the SEA Environmental Report.

The in-combination assessment found there is confidence that adverse effects can be avoided or fully mitigated through adjustments to the detailed design of the scheme and the application of measures described in the individual supply option assessments.

9.11.5 It is recommended that further assessment and targeted ecological survey data is obtained to mitigate potential adverse impacts.

9.12 WFD Assessment Findings

9.12.1 A WFD Report has been prepared to support the SWW WRMP24 (**Annex 3: Appendix I**). The WFD regulations require all waterbodies (both surface and groundwater) to achieve 'good status' and also require that waterbodies experience no deterioration in status as a result of the options. The WFD assessment is undertaken in accordance with the All Company Working Group (ACWG) Framework, consisting of two stages including an initial Level 1, basic screening and a Level 2, detailed impact screening. Following the completion of these screenings a cumulative assessment has been carried out to determine any additional impacts on respective waterbodies as a result of multiple options being constructed and operated in conjunction with each other.

9.12.2 During the Level 1 WFD assessment, 40 supply options and 3 SROs have been reviewed. Demand, drought and new yet to be assessed options have not been considered as they are either not available currently or do not have direct implications on WFD. SROs have been included under the WRMP although they were assessed separately outside of the WRMP24 framework.

9.12.3 As part of the Level 1 WFD assessment, four supply options were identified as having a very low risk of being non-compliant with the WFD objectives and as such did not require further assessment. A WFD Level 2 assessment was identified as being required for the remaining 39 options. WFD Level 2 assessments for the 39 options have been undertaken and findings presented within **Annex 3: Appendix I**.

9.12.4 The majority of the options assessed as part of the updated dWRMP24 have only been subject to high level design, and if taken forward would require additional WFD assessment following design development. The Level 2 WFD assessments identified further WFD mitigation and assessment would be required for 39 of the options. As such the existing Level 2 assessments have confirmed a potential risk of deterioration to the following 23 waterbodies:

- GB109053027371: Bristol Avon (By Bk to Netham Weir);
- GB40901G804600: Mendips;
- GB108043016051: Stour (Middle u/s Pimperne Brook);
- GB108043016052: Stour (Middle d/s Pimperne Brook);
- GB108043011040: Stour (Lower);
- GB108049000190: Lower River Camel;
- GB108048001420: Lower River Fowey;
- GB108048001171: Upper River Cober;
- GB108049000380: Hayle;
- GB530804906700: HAYLE;
- GB108049000560: Roseworthy Stream;
- GB108048001270: Lower River Fal;
- GB108046005200: Erme;
- GB108047004010: Lower River Yealm;
- GB108047007860: Lower River Tamar;

- GB30845277: Upper Tamar Lake;
- GB30847000: Roadford Lake;
- GB108047008020: Wolf;
- GB30843764: Slade Lower Reservoir;
- GB30846291: Avon Dam Reservoir;
- GB108047007731: Lower River Lyd;
- GB108045009160: Sid;
- GB108045009070: Lower Creedy; and
- GB620807080000: Scilly Isles.

9.12.5 A programme level assessment has been undertaken to assess the intra and inter effects of the BVP, however, this only includes the BVP options that have been assessed to date. This excludes the drought options and new supply options ROA21, WIM14 and WIM18. At this stage, no programme level appraisals have been undertaken on alternative plans due to delays in the modelling process and limited information being provided. Further assessments / appraisals will be undertaken on two alternative plans as part of the SoR December 2023 submission. No waterbodies have been identified as having the potential for an increased risk of WFD deterioration at a water body scale due to the BVP.

9.12.6 An in-combination effects assessment has also been undertaken which included all options within the BVP, local planning applications and major developments. No local planning applications were identified at the time of assessment. One large-scale development, National Highways A30 Chiverton to Charland Cross Scheme, was identified.

The in-combination effects assessment identified five water bodies where it is unlikely to lead to an increased risk of WFD deterioration:

- GB40801G806900: Upper Hampshire Avon;
- GB109053027371: Bristol Avon (By Bk to Netham Weir);
- GB40901G804600: Mendips;
- GB108043016052: Stour (Middle d/s Pimperne Brook; and
- GB520804415800: Poole Harbour.

The in-combination effects assessment identified one water body, GB108043011040: Stour (Lower), where it is possible for an increased risk of WFD deterioration from the combination of different BVP options.

9.13 INNS Assessment Findings

9.13.1 An INNS Risk Assessment has been prepared to support the draft WRMP24 (**Annex 5: Appendix K)**. One objective of the draft WRMP24 is to reduce the spread and/or presence of INNS. The scope of the INNS risk assessment is to identify and evaluate the potential for the different options given within the updated dWRMP24 to spread INNS. It consists of two assessments: a high-level ‘Level 1 screening’ of the options, and a more detailed ‘Level 2 assessment’ for those options deemed to be of a higher risk.

9.13.2 The Level 1 screening was undertaken to highlight INNS risks and identify options requiring a more detailed Level 2 assessment. During this screening, 35 mainland options and five IoS options were assessed. Of the 35 mainland options screened at Level 1, 21 options were assessed as having either no additional risk, or very low risk, with the remaining 14 being recommended for the more detailed Level 2 assessment (excluding SROs). Of the five IoS of Scilly options, all were assessed as having a very low risk therefore, no Level 2 assessments were recommended.

9.13.3 The Level 2 detailed assessments concluded the following risk scores for the options:

- BNW6 is calculated as 45.98% (highest risk component) and 45.07% (overall risk);
- COL2 is calculated as 50.35% (highest risk component) and 33.2% (overall risk);
- COL6 is calculated as 33.20% (highest risk component) and 35.23% (overall risk);
- COL9 is calculated as 35.39% (highest risk component) and 35.39% (overall risk);
- COL19 is calculated as 53.60% (highest risk component) and 36.41% (overall risk);
- COL20 is calculated as 41.98% (highest risk component) and 31.70% (overall risk);
- ROA2 is calculated as 49.35% (highest risk component) and 29.68% (overall risk);
- ROA3 is calculated as 52.10% (highest risk component) and 33.29% (overall risk);
- ROA4 is calculated as 46.58% (highest risk component) and 46.58% (overall risk);
- ROA7 is calculated as 56.60% (highest risk component) and 42.90% (overall risk);
- ROA12 is calculated as 47.58% (highest risk component) and 32.41% (overall risk);
- ROA14 is calculated as 69.9% (highest risk component) and 69.29% (overall risk);
- ROA15 is calculated as 46.25% (highest risk component) and 46.25% (overall risk); and
- WIM11 is calculated as 34.08% (highest risk component) and 29.82% (overall risk).

9.13.4 A programme-level assessment has been undertaken to assess the cumulative effects of the BVP. The nine drought options and 3 new supply options identified within the BVP have not undergone technical assessments and as such at this stage it has not been possible to rule out cumulative effects. Following assessment of these options in December 2023 as part of the SoR, the BVP Programme appraisal will be reviewed and updated to account for any further effects.

9.13.5 Potential spatial connectivity was identified for three option combinations within the BVP. The potential for in-combination INNS effects for two of these options combinations was deemed to be Very Low and therefore these were not recommended for further assessment. One option combination – BNW6 and BNW7 – was identified to require further assessment in the form of a combined SRO Aquatic INNS Risk Assessment Tool (SAI-RAT) assessment (stage 4). The option combination has the potential to create additional risk from in combination effects, through connection of waterbodies that would create a longer potential INNS transfer pathway. The combined SAI-RAT risk score was 36.06%.

9.13.6 Therefore, at the plan stage, in-combination effects that would increase the risk of INNS transfer are expected for the BVP presented in SWW's WRMP24.

9.13.7 Three new BVP options had insufficient information available for a Level 1 screening, Level 2 assessment, and subsequent in-combination effects assessment. These options will be updated and included in an in-combination assessment at a later date.

9.14 NCA / BNG Assessment Findings

9.14.1 The NCA / BNG technical note (**Annex 4: Appendix J**) accompanies the SWW updated dWRMP24, presenting the findings of the NCA and BNG reports, and related opportunities for the options.

9.14.2 The NCA assessment has been split into two stages 'Stage 1 – defining the zone of influence and the natural capital baseline' undertaken in accordance with respective guidance (National Natural Capital Atlas: Mapping Indicators (NECR285) and Stage 2 'Option level National Capital Assessment' which is undertaken in accordance with Water Resources Planning Guideline (WRPG) and Enabling a Natural Capital Approach (ENCA) requirements. The BNG assessment was undertaken in accordance with Defra and Natural England's Biodiversity 3.1 Metric.

9.14.3 A total of 43 options were assessed including the 3 SROs. A further three SROs have been identified as part of the updated dWRMP development, however an NCA/BNG assessment hasn't been undertaken to date.

9.14.4 The findings identified that overall, 26 assessed options are likely to cause the temporary and permanent loss of Natural Capital stocks including temporary loss of woodland (broadleaved, yew, mixed, priority and coniferous), during construction. However, best practice mitigation (such as directional drilling) and reinstatement/compensation of habitat means that most natural capital stocks post construction will have little change. Additionally, when habitat is destroyed during construction or implementation and then replaced it is unlikely to retain the same natural capital value.

9.14.5 Potential permanent loss of arable stocks, pastoral stocks, other semi-natural grassland stocks, dwarf heath shrub stocks, active floodplain stocks, river stocks, and greenspace stocks are expected to occur under the construction of some options considered. Priority habitats should be avoided whenever possible as certain features within them are irreplaceable once destroyed. River Erme (COL2) will likely cause the permanent loss of ancient woodland (as well as arable stocks and active flood plain). Ancient woodland is a high value natural capital stock that cannot be replaced or replicated once lost, therefore, future provision of stock presumed permanently lost. No other options are likely to cause the permanent loss of ancient woodland, however, Raise Avon Dam (ROA14) will likely cause the permanent loss of other semi-natural grassland stocks, dwarf heath shrub stocks, active flood plain, and river stocks.

9.14.6 The NCA and BNG assessments undertaken considered the worst case-scenario of the impact that the options will likely have on the environment.

9.14.7 The BVP is expected to result in -73.83% net loss of biodiversity units, as a result of a few options generating a net loss of biodiversity units in pastures and active floodplain. All ecosystem services experience a negative change in value (£2023/year), resulting in an overall loss in ecosystem services of -£580.26/year. The BVP provision of water services is likely to be lost during construction and its future provision is likely to be reduced whilst water flow regulation services are likely to be retained during construction and remain in the future.

9.14.8 Opportunities should be considered to ensure that the natural environment is left in a better condition than pre-construction conditions for the BVP. This should be achieved by one or both of the following:

- **Mitigation**: Opportunities to offset the net loss of biodiversity asset(s) and/or natural capital stock(s) (ecosystem service).
- **Enhancements**: Opportunities that, once introduced and established, would result in a net gain to a biodiversity asset and/or natural capital stock(s) (ecosystem service).

9.14.9 As a core principle, where possible, the BVP should aim to not only reinstate lost habitat, but also provide a greater or more diverse habitat than is lost, to achieve overall BNG. The latter could be achieved by identifying local sites of ecological interest and proposing measures. Any habitats that are created or enhanced to achieve BNG are required to be secured for 30 years, through management, maintenance, and monitoring.

9.14.10 SWW recognise that their supply side options at their current level of development cannot confirm a 10% BNG. In developing their updated dWRMP24, SWW is seeking to ensure a net improvement in the environment during its implementation. There is ongoing review of option designs, and assessment of BNG opportunities in the SWW area is being undertaken in collaboration with SWW engineers. This BNG opportunities assessment will identify potential on-site and off-site enhancement and creation opportunities that could result in positive BNG outcomes. SWW are committed to protecting and enhancing the environment and intend to

achieve their BNG ambitions by developing a proposal for a biodiversity fund. This will be used to ensure that all schemes provide additional BNG.

10 Plan Appraisal and Decision Making

10.1 Programme Level Appraisal

This chapter discusses the results of the environmental assessments on a programme-wide scale for the preferred plan, referred to throughout as the 'BVP'. Further assessment on alternative plans has not been undertaken at this stage due to delays in the modelling process and a lack of information on plan alternatives. However an assessment of the adaptive plan, which includes the options that may be considered as part of the BVP and within the plan alternatives, has been undertaken. This can be found within **Section 10.4**. The assessment on alternative plans will be undertaken in Autumn 2023, and will be included within the next revision of this report, December 2023.

10.1.1 A programme-level summary of the effects of the preferred plan is presented in the sections below, followed by the cumulative effects. The BVP comprises a selection of demand, supply and drought options assessed in the SEA process. Options are drawn from the Bournemouth, Colliford, Roadford and Wimbleball WRZs. *[It is noted that drought options and two supply options haven't undergone full environmental assessments at the time of writing and the environmental HLS has been used to inform the cumulative assessment.]*

10.1.2 Options that are listed within the BVP are described within **Table 2.1**.

10.1.3 The plan has been assessed utilising the SEA Framework SWW WRMP24 SEA objectives outlined in **Table 7.1**, with each objective scored in accordance with **Table 8.1 (Annex 1: Appendix E).**

10.2 Best Value Plan

10.2.1 **Table 10.1** and **Table 10.3** below show the combination of supply and demand options which make up the BVP. These consist of individual options from the following WRZs: Bournemouth, Colliford, Roadford and Wimbleball. **Table 10.1** presents the current status of environmental assessments undertaken across the BVP.

10.2.2 Two supply options; WIM14 and ROA21 have not undergone a full SEA assessment at this stage due to time constraints and availability of information. An HLS has been undertaken for these options, as described in **Section 9.8**, therefore at this stage it has not been possible to rule out cumulative effects. A full assessment of these options will be undertaken in Autumn 2023 and an updated Environmental Report will be submitted as part of the SoR in December 2023. The BVP programme appraisal will be reviewed and updated to account for any further effects from these assessments.

10.2.3 Options BN7, BNW8 and WIM18 are SROs and have not been assessed under the SEA framework set out in the report. They are however considered within the cumulative effects narrative in **Section 10.3** as far as feasible based on the information available at the time of writing.

10.2.4 Nine drought options are also included within the BVP. Most of these options have undergone an HLS, however, have not yet undergone a full SEA assessment. The drought options are therefore not included within the following SEA summary tables. As such, at this stage it has not been possible to rule out cumulative effects. A full assessment of these options will be undertaken in Autumn 2023 and included in the updated Environmental Report as part of the SoR December 2023.

10.2.5 The drought options are:

- L1 demand,
- L2 demand,
- dC2 - Stannon Lake licence,
- dC3 - Porth Reservoir and Rialton Intake,
- dR2 - Slade Reservoir,
- dRS15/E - Roadford compensation flows,
- dW1 - Brampford Speke & Stoke Canon,
- dW4 - Wimbleball compensation flows, and
- dB2 - Stanbridge licence.

10.2.6 Options dC2 and dC3 have been identified as part of the SWW Drought Plan and have been assessed via EARs (see **Section 9.10**). Therefore, these options do not have a SEA or HLS.

10.2.7 To date, no information has been provided on the drought options L1 & L2 demand. Therefore, these options have not been considered within the cumulative effects assessment.

10.2.8 It should be noted that at this stage, this is a high-level assessment as no construction timelines have been provided for the supply options. The BVP programme appraisal will be reviewed and updated to account for any further effects within the December 2023 submission.

Table 10.1: Best Value Plan Environmental Assessments

Option	Option Type	SEA	HRA	WFD	INNS	BNG	NCA	HLS	EAR	SRO
COL 15	Supply									
WIM 14	Supply									
ROA21	Supply									
WIM 18	SRO									
BNW 8	SRO									
BNW 7	SRO									
BNW 1	Supply									
BNW 14	Supply									
BNW 6	Supply									
HH: Metering	Demand									
NHH: Metering other selective	Demand									
HH: Other water efficiency (incentives)	Demand									
NHH: Water audit, retrofitting indoor water efficiency devices, water efficiency customer education / awareness.	Demand									
NHH: Water reuse	Demand									
NHH: Other water efficiency (rainwater harvesting)	Demand									

Option	Option Type	SEA	HRA	WFD	INNS	BNG	NCA	HLS	EAR	SRO
HH: Water audit	Demand									
HH: Rainwater harvesting	Demand									
HH: Other water efficiency (policy)	Demand									
Distribution options	Demand									
L1 & L2 demand	Drought									
dC2 - Stannon Lake licence	Drought									
dC3 - Porth Reservoir and Rialton Intake	Drought									
dR2 - Slade Reservoir	Drought									
dRS15/E - Roadford compensation flow	Drought									
dW1 - Brampford Speke & Stoke Canon	Drought									
dW4 - Wimbleball compensation flows	Drought									
dB2 - Stanbridge licence	Drought									

Table 10.2: Best Value Plan supply and demand options short term (construction) SEA summary

Option Ref	ST / LT	SEA Topics																
		Biodiversity			Water			Soil	Air	Climate		Hist. Env	Landscape	Population and Health			Material assets	
		1.1	1.2	1.3	2.1	2.2	2.3	3	4	5.1	5.2	6	7	8.1		8.2	9.1	9.2
COL 15	ST	-	-	0	0	-	-	0	-	--	0	-	-	-	+	-	-	0
WIM 14	ST	High Level Screening undertaken; SEA not yet completed																
ROA21	ST	High Level Screening undertaken; SEA not yet completed																
WIM 18	ST	SRO and not assessed under the SEA framework																
BNW 8	ST	SRO and not assessed under the SEA framework																
BNW 7	ST	SRO and not assessed under the SEA framework																
BNW 1	ST	-	-	0	0	0	0	-	-	-	0	0	-	0		0	-	0
BNW 14	ST	-	--	-	--	-	0	-	-	--	0	-	-	-	+	-	-	-
BNW 6	ST	-	-	-	-	-	0	-	-	0	0	0	0	-	++ +	-	-	0
HH: Metering	ST	0	0	0	0	0	0	0	0	0	0	0	0	0		0	-	0
NHH: Metering other selective	ST	0	0	0	0	0	0	0	0	0	0	0	0	0		0	-	0
HH: Other water efficiency (incentives)	ST	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
NHH: Water audit, retrofitting indoor water efficiency devices,	ST	0	0	+	0	+	0	0	0	0	0	0	0	+		0	0	+

Option Ref	ST / LT	SEA Topics																			
		Biodiversity				Water			Soil		Air	Climate		Hist. Env		Landscape		Population and Health		Material assets	
		1.1	1.2		1.3	2.1	2.2	2.3	3		4	5.1	5.2	6		7		8.1	8.2	9.1	9.2
water efficiency customer education / awareness.																					
NHH: Water reuse	ST	0	0		0	0	0	0	0		0	0 -	0	0		0		0	0	-	0
NHH: Other water efficiency (rainwater harvesting)	ST	0	0		0	0	0	0	0		0	-	0	0		0		0	0	-	0
HH: Water audit	ST	0	0		0	0	0	0	0		0	0	0	0		0		0	0	0	0
HH: Rainwater harvesting	ST	0	0		0	0	0	0	0		0	0	0	0		0		0	0	0	0
HH: Other water efficiency (policy)	ST	0	0		0	0	0	0	0		0	0	0	0		0		0	0	0	0
Distribution options	ST	-	-	0	0	0	0	-	0	-	0	-	0	0	-	0	-	0	0	-	0	-	0

Table 10.3: Best Value Plan supply and demand options long-term (operation) SEA summary

Option Ref	ST / LT	SEA Topics															
		Biodiversity			Water			Soil	Air	Climate		Hist. Env	Landscape	Population and Health		Material assets	
		1.1	1.2	1.3	2.1	2.2	2.3	3	4	5.1	5.2	6	7	8.1	8.2	9.1	9.2
COL 15	LT	-	-	0	-	0	+	0	0	-	+ -	0	0	+	-	-	0
WIM 14	LT	High Level Screening undertaken; SEA not yet completed															
ROA21		High Level Screening undertaken; SEA not yet completed															
WIM 18	LT	SRO and not assessed under the SEA framework.															
BNW 8	LT	SRO and not assessed under the SEA framework.															
BNW 7	LT	SRO and not assessed under the SEA framework.															
BNW 1	LT	0	--	0	--	0	+ -	0	0	0	+	0	0	+	0	-	0
BNW 14	LT	-	--	0	--	+	++	-	-	-	+	0	0	0	0	-	0
BNW 6	LT	- +	- +	-	-	- +	++	0	-	0	+	0	0	+	-	-	-
HH: Metering	LT	0	0	0	0 +	0	0 +	0	0	0	0	0	0	+	0	0	0
NHH: Metering other selective	LT	0	0	0	+	0	+	0	0	0	0	0	0	+	0	0	0
HH: Other water efficiency (incentives)	LT	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0
NHH: Water audit, retrofitting indoor water efficiency devices, water efficiency customer	LT	0	0	0	+	0	+	0	0	0	0	0	0	+	0	0	+

Option Ref	ST / LT	SEA Topics															
		Biodiversity			Water			Soil	Air	Climate		Hist. Env	Landscape	Population and Health		Material assets	
		1.1	1.2	1.3	2.1	2.2	2.3	3	4	5.1	5.2	6	7	8.1	8.2	9.1	9.2
education / awareness.																	
NHH: Water reuse	LT	0	0	0	+	0	+	0	0	0	0	0	0	+	0	0	0
NHH: Other water efficiency (rainwater harvesting)	LT	0	+	0	+	+	+	0	0	+	+	0	0	+	0	+	0
HH: Water audit	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HH: Rainwater harvesting	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HH: Other water efficiency (policy)	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Distribution options	LT	0	0	0	+	0	+	0	0	0	0	0	0	+	0	0	0

Best Value Plan short-term (construction) effects

10.2.9 One potential major positive short-term (construction) effect has been identified for the BVP (see **Table 10.1**). This is associated with option BNW6 and is related to the option having substantial CAPEX costs which may benefit the local economy.

10.2.10 No other positive short-term effects have been identified.

10.2.11 No major negative short-term effects have been identified. However, moderate adverse effects have been identified for options BNW14 and COL15. For BNW14, a moderate short-term effect has been identified for objective (1.2) "*Protect, conserve and enhance biodiversity, including priority species, vulnerable habitats and habitat connectivity*", due to loss of habitat and (2.1) "*Protect and enhance the quality of the water environment and water resources*" due to the potential for deterioration of WFD status. For COL15, a moderate negative effect has been identified for objective (5.1) "*Reduce embodied and operational carbon emissions*" due to the anticipated infrastructure required and the embodied carbon associated with this.

10.2.12 The potential for minor negative effects has been identified for every objective. The demand options do present fewer minor negative scores, due to these options requiring less construction works and the nature of these options keeping water in the environment rather than taking from it.

10.2.13 Minor negative effects have been identified for at least one of the biodiversity objectives (1.1-1.3) for option COL15, BNW1, BNW14, BNW6 and the distribution demand options. This is related to the potential for these options to remove habitats, disturb biodiversity or designated sites.

10.2.14 Minor negative effects have also been identified for at least one of the water objectives (2.1-2.3) for COL15, BNW14 and BNW6. This is associated with the options having potential for a negative effect on water resources, increasing the potential for flooding or having the potential for negative effects on surface or groundwater bodies e.g. through pollution.

10.2.15 Options BNW1, BNW14, BNW6 and distribution options have been identified as having potential for negative short-term effects on soil objective (3) "*Protect and enhance the functionality, quantity and quality of soils, including the protection of sites of geological importance*". This is related to construction activities damaging or disturbing soil, or the location being located within particularly highly graded agricultural land.

10.2.16 Options COL15, BNW1, BNW14 and BNW6 have been identified as having potential for negative short-term effects on air quality objective (4) "*Reduce and minimise air emissions*". This is related to construction activities and increased traffic associated with construction having the potential to reduce local air quality.

10.2.17 The following options have been assessed as having a minor negative effect on objective (5.1) "*Reduce embodied and operational carbon emissions*"; BNW1, BN14, NHH: Water reuse, NHH: Other water efficiency (rainwater harvesting), distribution options and NHH: Water audit, retrofitting indoor water efficiency devices, water efficiency customer education / awareness. This is related to the embodied carbon associated with the infrastructure required or car journeys needed to carry out these options.

10.2.18 Options COL15, BNW14 and distribution options have all been identified for having the potential for minor negative effect on the historic environment. This is due to the possibility that construction activities could harm designated (or non-designated) heritage assets such as Listed Buildings or Conservation Areas.

10.2.19 For landscape objective (7), COL15, BNW1 and BNW14 have all been assessed as having potential for minor negative effects. Effects are associated with the potential for construction activities to effect views or the setting of landscape sensitive areas such as AONBs.

10.2.20 Options COL15, BNW14 and BNW6 have been identified as having a minor negative effect on objective (8.1) "*Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing* " and (8.2) "*Maintain and enhance tourism and recreation*". Distribution options have also been assessed as having a minor negative effect on objective (8.2). These minor negative effects are associated with construction activities having the potential to disrupt or cause disturbance to daily activities, and tourism and recreation. This could include issues such as road closures and diversions.

10.2.21 Most options which involve construction activities are anticipated to have a minor negative effect on objective (9.1) "*Minimise resource use and waste production*". Due to waste being produced and resources required during construction. This includes options COL15, BNW1, BNW6, BNW14, HH: Metering, NHH: Metering other selective, NHH: Water reuse and NHH: Other water efficiency (rainwater harvesting). Furthermore, options BNW14, NHH: Water audit, retrofitting indoor water efficiency devices, water efficiency customer education / awareness, NHH: Water reuse and NHH: Other water efficiency (rainwater harvesting) have potential for short-term minor negative effects on objective (9.1) "Avoid negative effects on built assets and infrastructure".

Best Value Plan long-term (operational) effects

10.2.22 There have been no major positive long-term (operational) effects identified for the BVP.

10.2.23 Option BNW14 and BNW6 have been identified as having the potential for moderate positive short-term effects associated with objective (2.3) "*Deliver reliable and resilient water supplies*". This demonstrates that these options may improve resilience and reliability in the Bournemouth region.

10.2.24 Minor positive effects have been identified for many of the options within the BVP, this is especially so for the demand options. This demonstrates how reducing demand and ensuring water remains in the natural environment can have positive effects.

10.2.25 Minor positive effects have been identified for biodiversity objectives (1.1) for BNW6 and (1.2) for BNW6 and NHH: Other water efficiency (rainwater harvesting). This is associated with these options potentially improving aquatic habitats through retaining water in the system.

10.2.26 Minor positive effects have also been identified for at least one of the water objectives (2.1-2.3) for all options apart from COL15, HH: Other water efficiency (incentives), HH: Water audit, HH: Rainwater harvesting and HH: Other water efficiency (policy). Benefits are associated with reducing demand or abstraction rates, resulting in more water being retained in the natural environment.

10.2.27 Option NHH: Other water efficiency (rainwater harvesting) has been assessed as having a potential for a minor positive effect on objective (5.1) "*Reduce embodied and operational carbon emissions*". This is associated with a reduction in the volume of water needing to be treated and pumped, which requires energy and thus carbon. This options also scored minor positive in relation to objective (5.2) alongside options BNW1, BNW14 and BNW6. This is associated with better management of water and reducing the risk of flooding.

10.2.28 Positive effects have been identified for objective (8.1) "*Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing*" for all options apart from BNW14, HH: Water audit, HH: Rainwater harvesting and HH: Other water efficiency (policy). These positive effects are largely attributed to reducing demand and improving resilient water supplies.

10.2.29 For objective (9) material assets, one minor positive score has been identified for option NHH: Other water efficiency (rainwater harvesting), associated with reducing the dependence on public water supply. A minor positive score has also been identified for option NHH: Water audit, retrofitting indoor water efficiency devices, water efficiency customer education / awareness, associated with improving operational efficiency.

10.2.30 No major long-term negative effects have been identified in the BVP.

10.2.31 Options BNW1 and BNW14 have been identified as having the potential for moderate adverse effects on objective (1.2) "*Protect, conserve and enhance biodiversity, including priority species, vulnerable habitats and habitat connectivity*", associated with increased abstraction and habitat loss.

10.2.32 The same options as above have also been identified as having potential for a moderate negative effect on objective (2.1) "*Protect and enhance the quality of the water environment and water resources*", again, due to increased abstraction and the effect this could have on associated waterbodies.

10.2.33 Option COL15 has potential for a moderate negative effect on the climate objective (5.1) due to the operational carbon associated with this option.

10.2.34 Minor negative effects have been identified for supply options only. This includes options COL15, BNW1, BNW14 and BNW6.

10.2.35 For COL15, minor negative effects have been identified for objectives relating to biodiversity, water, air, historic environment, landscape, population and human health and material assets. These potential negative effects are related to the option increasing abstraction which could impact biodiversity and the water environment, as well as having the potential for negative effects on the historic environment. Increasing capacity at the site is also anticipated to involve an increase in energy, resulting in increased emissions.

10.2.36 Option BNW1 has been assessed as having potential long-term negative effects on water and material assets associated with potential for reducing water quality and ongoing energy consumption.

10.2.37 Option BNW14 has the potential for long-term negative effects on biodiversity, soil, air, climate and material assets. This is associated with the nature of the option involving a new intake which could affect biodiversity at the site and could potentially disturb habitats. New infrastructure could cause long-term damage to soil and the operational energy demand may result in an increase in carbon and reduction in air quality.

10.2.38 For option BNW6, potential minor negative effects have been identified for objectives relating to biodiversity, water, air, climate, population and human health and material assets. These are associated with the nature of the option involving increased abstraction during the summer which may affect biodiversity at the site and could potentially disturb habitats, as well as adversely effected water quantity and quality during this time. Increased abstraction is anticipated to require an increase in energy demand which may result in an increase in operational carbon and reduction in air quality. A reduction in water quantity during the summer may also affect recreation at the option location.

10.3 Intra Cumulative Effects

To determine potential cumulative construction and operation effects of the options within the BVP, an intra cumulative effects assessment has been undertaken using the methodology set out in **Section 8.4**, which is deemed appropriate for the maturity of the scheme and scale of development. The Intra cumulative effects assessment is captured in **Table 10.4**.

[Note that the intra cumulative assessment outlined below is indicative and will be updated following provision of construction and operation timeframes and the completion of outstanding environmental assessments Autumn 2023 and presented within the updated Environmental Report as part of the SoR submission December 2023. This assessment provides an initial indication of the cumulative effects associated with the preferred plan only.]

Table 10.4: Best Value Plan Cumulative (Intra) Narrative

Theme	Objective		Construction Narrative	Operation Narrative
Biodiversity	**1.1**	**Protect and enhance designated and non-designated ecological sites.**	This plan is considered to have an overall **minor negative** cumulative effect on SEA objective 1.1 during construction for the Colliford WRZ which includes options COL15 and drought options dC2 and dC3. COL15 is the only supply option in this WRZ, with the other two options being drought options which have corresponding EARs. For COL15, the HRA concluded that there are no likely significant effects.. For dC2, the EAR identified major significance of impacts on macroinvertebrates, Atlantic salmon, brown/sea trout, bullhead and lamprey spawning and lamprey juvenile life stages, some of which may be qualifying species of designated sites. For dC3, a change in licence, however the effects on ecology and other features are anticipated to be minor. These options are considered a sufficient distance away that cumulative effects remain minor. This plan is considered to have an overall **minor negative** cumulative effect on SEA objective 1.1 during construction for the Bournemouth WRZ which includes supply options BNW1, BNW6, BNW7, BNW8, BNW14 and drought option dB2. BNW7 and BNW8 are SROs. The options are close to a number of designated sites. BNW6 and BNW8 are located approximately 2.5km, meaning construction effects could be cumulative. The Dorset Heathlands SAC, SSSI and Ramsar site lies between BNW6 and BNW8, however the SEA for BNW6 states '*These sites are particularly ecologically sensitive to changes in groundwater levels and chemistry and will be at risk of pollution during construction activities. However, it was concluded that there would be no residual adverse impacts on the integrity of the sites if mitigation measures are effectively implemented'* Another area of Dorset Heathlands lies within 5km of BN6, BN8 and BNW14. Furthermore, BNW14 is located within the Avon Valley SAC SPA and Ramsar. This site is also within 5km of BNW8 and 10km of BNW6. The New Forest SAC, SPA and Ramsar is within 500m of BNW1 and approximately 3km from BNW14. The HLS did not identify any high risks associated with designated sites for drought option dB2. BNW7 is considered a sufficient distance away to not have cumulative effects on designated sites.	This plan is considered to have an overall **minor negative** cumulative effect on SEA objective 1.1 during operation for the Colliford WRZ. The HRA did not identify any ongoing effects associated with option COL15. The limited available information on the effects of the drought options is considered applicable to both construction and operation. For dC2, the EAR identified major significance of impacts on macroinvertebrates, Atlantic salmon, brown/sea trout, bullhead and lamprey spawning and lamprey juvenile life stages, some of which may be qualifying species of designated sites. For dC3, a change in licence, however the effects on ecology and other features are anticipated to be minor. These options are considered a sufficient distance away that cumulative effects remain minor. This plan is considered to have an overall **moderate negative** cumulative effect on SEA objective 1.1 during construction for the Bournemouth WRZ. As mentioned within the construction effects, a number of designated sites have potential to be affected by the options. These effects may be more prevalent during operation in relation to changes in water quality and quantity. BNW7 is considered a sufficient distance away to not have cumulative effects on designated sites. The options in the Roadford WRZ consist of ROA21 and drought options dR2 and dRS15/E. All of these options have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 1.1 cannot be confirmed at this stage. The HLS did note that option dRD15/E is within 400m of Plymouth sound SAC, and ROA21 is also within 2km of this SAC. Other designated sites are also within 2km of all three options. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 1.1 cannot be confirmed at this stage. The HLS did note that option dW1 and dW4 are

Theme	Objective		Construction Narrative	Operation Narrative
			The options in the Roadford WRZ consist of ROA21 and drought options dR2 and dRS15/E. All of these options have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 1.1 cannot be confirmed at this stage. The HLS did note that option dRD15/E is within 400m of Plymouth sound SAC, and ROA21 is also within 2km of this SAC. Other designated sites are also within 2km of all three options. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 1.1 cannot be confirmed at this stage. The HLS did note that option dW1 and dW4 are within 500m of SSSIs. As WIM18 is anticipated to cover a large distance, there is potential that it will be in close proximity to designated sites. In relation to the demand options, there are not anticipated to be any cumulative effects in relation to designated sites. There is potential for the distribution options to result in localised adverse effects during construction, however these are considered minor, temporary and location specific.	within 500m of SSSIs. As WIM18 is anticipated to cover a large distance, there is potential that it will be in close proximity to designated sites.
	1.2	**Protect, conserve and enhance biodiversity, including priority species, vulnerable habitats and habitat connectivity**	This plan is considered to have an overall **minor negative** cumulative effect on SEA objective 1.2 during construction for the Colliford WRZ which includes options COL15 and drought options dC2 and dC3. COL15 is the only supply option in this WRZ, with the other two options drought options, with corresponding EARs. For COL15, there are potential minor negative effects related to disturbance of habitats and the potential loss of BNG units. For dC2, the EAR identified major significance of impacts on macroinvertebrates, Atlantic salmon, brown/sea trout, bullhead and lamprey spawning and lamprey juvenile life stages, some of which may be qualifying species of designated sites. For dC3, a change in licence, however the effects on ecology and other features are anticipated to be minor. These options are considered a sufficient distance away that cumulative effects remain minor.	This plan is considered to have an overall **minor negative** cumulative effect on SEA objective 1.2 during operation for the Colliford WRZ. For COL15, reduced flow rates downstream could adversely affect biodiversity. For dC2, the EAR identified major significance of impacts on macroinvertebrates, Atlantic salmon, brown/sea trout, bullhead and lamprey spawning and lamprey juvenile life stages, some of which may be qualifying species of designated sites. For dC3, a change in licence, however the effects on ecology and other features are anticipated to be minor. These options are considered a sufficient distance away that cumulative effects remain minor. This plan is considered to have an overall **moderate negative** cumulative effect on SEA objective 1.2 during operation for the Bournemouth WRZ. BNW6 and BNW7 are both associated with the River Stour, which could affect aquatic habitats downstream. Furthermore, the increased abstraction of water

Theme	Objective		Construction Narrative	Operation Narrative
			This plan is considered to have an overall **moderate negative** cumulative effect on SEA objective 1.2 during construction for the Bournemouth WRZ. The SEAs for BNW1, BNW6 and BNW14 identified potential issues such as habitat loss or disturbance and all options are within 500m of priority habitat. The HLS for dB2 noted that the option is within 500m of priority habitat and ancient woodland. BNW7 and BNW8 also have potential to harm biodiversity, particularly BNW7 which has such a large construction extent. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 1.2 cannot be confirmed at this stage. The HLS did identify that all three options are expected to result in direct land take from priority habitats and ROA21 and dRS15/E directly encroach on to ancient woodland. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 1.2 cannot be confirmed at this stage. The HLS did identify that WIM14 and dW1 are anticipated to result in direct land take from priority habitats. Furthermore, due to the construction extent of WIM18, there is also potential for this SRO to disturb or destroy habitats and biodiversity. In relation to the demand options, there are not anticipated to be any cumulative effects in relation to habitats and biodiversity. There is potential for the distribution options to result in localised adverse effects during construction, however these are considered minor, temporary and location specific.	in the Bournemouth area could negatively affect a number of aquatic or water dependent habitats and biodiversity. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 1.2 cannot be confirmed at this stage. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 1.2 cannot be confirmed at this stage. The HLS did identify that WIM14 and dW1 are anticipated to result in direct land take from priority habitats. Furthermore, due to extent of WIM18, there is also potential for this SRO to disturb or destroy habitats and biodiversity. In relation to the demand options, ensuring more water is kept in the natural environment may have **minor positive** cumulative effects across the SWW region on water dependent habitats and species which may be adversely affected by abstraction.
	1.3	**Reduce the spread or presence of INNS**	This plan is considered to have a **neutral** cumulative effect on SEA objective 1.3 across the Colliford WRZ. This plan is considered to have a **minor negative** cumulative effect on SEA objective 1.3 across the Bournemouth WRZ. This is mostly related to options BNW14, BNW6 and BNW7.	This plan is considered to have a **neutral** cumulative effect on SEA objective 1.3 across the Colliford WRZ. This plan is considered to have a **minor negative** cumulative effect on SEA objective 1.3 across the Bournemouth WRZ. This is related to BNW14, BNW6 and BNW7 related to the

Theme	Objective		Construction Narrative	Operation Narrative
			The SEA assessments for BNW6 and BNW14 note the potential for the spread of INNS during excavation and the use of shared equipment. Due to the construction extent of BNW7, this may also present a risk. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 1.3 cannot be confirmed at this stage as no INNS assessment has been undertaken. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 1.3 cannot be confirmed at this stage as no assessment on INNS has been undertaken.	transfer of water between sources which may lead to the spread of INNS. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 1.3 cannot be confirmed at this stage as no INNS assessment has been undertaken. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 1.3 cannot be confirmed at this stage as no assessment on INNS has been undertaken.
Water	**2.1**	**Protect and enhance the quality of the water environment and water resources**	This plan is considered to have an overall **neutral** effect on SEA objective 2.1 across the Colliford region. Drought option dC3 does involve the restart of abstraction from the River Porth, therefore there may be construction effects on the water environment. However, there are not anticipated to be cumulative effects with the other options. This plan is considered to have an overall **minor negative** effect on SEA objective 2.1 across the Bournemouth region. This is related to construction having potential to affect water quality e.g. through pollution. This is particularly so in relation to BNW7 and BNW6, which are both associated with the River Stour. Furthermore, the SEA for BNW14 identified possible deterioration of a WFD waterbody during construction. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 2.1 cannot be confirmed at this stage. There is potential that during construction, water quality could be reduced due to issues such as pollution.	This plan is considered to have an overall **moderate negative** effect on SEA objective 2.1. This is related to all options resulting in increased abstraction water sources in the Colliford region. Although COL15 is anticipated to be constructed later than the drought options, all options may still be operational at the same time. This plan is considered to have an overall **minor negative** effect on SEA objective 2.1 across the Bournemouth region. This is related to increased abstraction having the potential to reduce water quality. This is particularly so in relation to BNW7 and BNW6, which are both associated with the River Stour. Furthermore, the SEA for BNW14 identified possible deterioration of a WFD waterbody during operation. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 2.1 cannot be confirmed at this stage. The HLS did identify that ROA21 is located in groundwater Source Protection Zone 1 and

Theme	Objective		Construction Narrative	Operation Narrative
			The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 2.1 cannot be confirmed at this stage. There is potential that during construction, water quality could be reduced due to issues such as pollution.	dRS15/E is located within groundwater Source Protection Zone 2. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 2.1 cannot be confirmed at this stage. The HLS did identify that WIM14 and dW1 are located within groundwater Source Protection zones 1 and 2. In relation to the demand options, ensuring more water is kept in the natural environment, may have a **minor positive** cumulative effect on objective 2.1. Reducing the need for further abstraction could retain water quality and quantity across the SWW region.
	2.2	**Increase resilience and reduce flood risk**	This plan is considered to have an overall **neutral** effect on SEA objective 2.2 for the Colliford region in relation to reducing flood risk during construction. This is related to the options not requiring major construction work which could increase flood risk at the option, or further downstream. This plan is considered to have an overall **neutral** effect on SEA objective 2.2 for the Bournemouth region in relation to reducing flood risk during construction. Although there may be localised increased risk to flooding during construction, the options are considered a sufficient distance away for this not to present cumulative effects. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 2.2 cannot be confirmed at this stage. However, the HLS did identify that all three options are located in flood zone 2 and 3 which could indicate flood risk may be an issue. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however	This plan is considered to have an overall **neutral** cumulative effect on SEA objective 2.2 during operation in the Colliford WRZ. It is unlikely that the drought options would be in operation in times of flooding therefore no cumulative effects are anticipated. This plan is considered to have an overall **neutral** effect on SEA objective 2.2 for the Bournemouth region in relation to reducing flood risk during operation. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 2.2 cannot be confirmed at this stage. However, the HLS did identify that all three options are located in flood zone 2 and 3 which could indicate flood risk may be an issue. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 2.2 cannot be confirmed at this stage. The HLS did identify that options WIM14 and

Theme	Objective		Construction Narrative	Operation Narrative
			have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 2.2 cannot be confirmed at this stage. The HLS did identify that options WIM14 and dW4 are located within flood zone 2 and 3, which could indicate flood risk may be an issue.	dW4 are located within flood zone 2 and 3 which could indicate flood risk may be an issue.
	2.3	**Deliver reliable and resilient water supplies**	This plan is considered to have **minor negative** cumulative effects under SEA objective 2.3 during construction in the Colliford region. During construction water supplies may be interrupted. Although COL15 is anticipated to be constructed later than the drought options, it may be that the drought options are bought forward together. This plan is considered to have **neutral** cumulative effects under SEA objective 2.3 during construction in the Bournemouth region. As the Bournemouth options deliver new infrastructure, existing WTW, pumping station etc should not be affected by these options. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 2.3 cannot be confirmed at this stage. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 2.3 cannot be confirmed at this stage.	This plan is considered to have both **minor positive** cumulative effects on SEA objective 2.3 during operation in the Colliford WRZ. This is related to the options providing reliable water supplies. Having drought options in place provides further resilience to the region. This plan is considered to have both **moderate positive** cumulative effects on SEA objective 2.3 during operation in the Bournemouth WRZ. This is associated with the Bournemouth options delivering new water supplies to the region, increasing resilience. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 2.3 cannot be confirmed at this stage. However, introducing new options within the Roadford region may increase water supplies and improve resilience. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 2.3 cannot be confirmed at this stage. However, introducing new options within the Wimbleball region may increase water supplies and improve resilience. In relation to the demand options, improving water efficiency, reducing leakage, and reducing the overall water demand in

Theme	Objective		Construction Narrative	Operation Narrative
				the SWW region may have a **minor positive** cumulative effect on objective 2.2.
Soil	**3**	**Protect and enhance the functionality, quantity and quality of soils, including the protection of sites of geological importance**	This plan is considered to have **a neutral** cumulative effects on SEA objective 3 during the construction phase within the Colliford WRZs. This is associated with the limited construction required for the options in this region. This plan is considered to have **a minor negative** cumulative effect on SEA objective 3 during the construction phase within the Bournemouth WRZs. All options apart from dB2 are anticipated to involve earthworks during construction, which may negatively affect soils. In particular, BNW14 and BNW7 involve large pipelines which are expected to disturb large areas of soil. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 3 cannot be confirmed at this stage. However, the HLS did identify that ROA21 is located within Grade 2 agricultural land, a loss of which would be considered a negative effect. The other two options are located within grade 3/4/5 agricultural land. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 3 cannot be confirmed at this stage. However, the HLS did identify that options WIM14 and dW1 do intersect with areas of Grade 1 agricultural land, a loss of which would be considered a negative effect. Option dW4 is located within grade 3 agricultural land. Option The land categorisation has not been confirmed for WIM18. For the demand options, there is potential for **minor negative** effects associated with the construction stage of the distribution options. However, these effects are likely to be minor, temporary and localised. Therefore, these effects are	This plan is considered to have a **neutral** cumulative effect on SEA objective 3 during operation in the Colliford region. The increase in abstraction and license changes associated with these options are not anticipated to affect soils. This plan is considered to have a **neutral** cumulative effect on SEA objective 3 during operation in the Bournemouth region. Once operational, the Bournemouth options are not anticipated to disturb soils. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 3 cannot be confirmed at this stage. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 3 cannot be confirmed at this stage. However, the HLS did identify that options WIM14 and dW1 do intersect with areas of Grade 1 agricultural land, a loss of which would be considered a negative effect. Option dW4 is located within grade 3 agricultural land. The land categorisation has not been confirmed for WIM18.

Theme	Objective		Construction Narrative	Operation Narrative
			not anticipated to contribute towards adverse cumulative effects across the SWW region.	
Air	**4**	**Reduce and minimise air emissions**	This plan is considered to have an overall **neutral** effect on SEA objective 4 during construction in the Colliford WRZ. Although each of the options may potentially effect locals air quality temporarily during construction, the options are considered a sufficient distance away from each other for cumulative effects not to occur. This plan is considered to have an overall **minor negative** effect on SEA objective 4 during construction in the Bournemouth WRZ. Some construction activities and the associated construction traffic has potential to temporarily reduce air quality in the region. Where options are closer together, such as BNW6, BNW8 and BNW14, these effects may be more prevalent. Option dB2 is not anticipated to affect air quality due to the nature of the option. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 4 cannot be confirmed at this stage. However, the HLS did identify that options ROA21 and dRS15/E are located within 500m of an AQMA. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA Objective 4 cannot be confirmed at this stage. However, the HLS did identify that options WIM14, dW1 and dW4 are not located within 500m of an AQMA. This has not been confirmed for WIM18.	This plan is considered to have a **neutral** cumulative effect on SEA Objective 4 across the Colliford WRZ during operation. This plan is considered to have a **neutral** cumulative effect on SEA Objective 4 across the Bournemouth WRZ during operation. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA Objective 4 cannot be confirmed at this stage. However, the HLS did identify that options ROA21 and dRS15/E are located within 500m of an AQMA. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA Objective 4 cannot be confirmed at this stage. However, the HLS did identify that options WIM14, dW1 and dW4 are not located within 500m of an AQMA. This has not been confirmed for WIM18.
Climate	**5.1**	**Reduce embodied and operational carbon emissions**	This plan is considered to have a **moderate negative** cumulative effect in relation to SEA objective 5.1 for the Colliford WRZ. This is related to the embodied carbon associated with these options.	This plan is considered to have a **moderate negative** cumulative effect in relation to SEA objective 5.1 for the Colliford WRZ. This is related to the increased abstraction and

Theme	Objective		Construction Narrative	Operation Narrative
			This plan is considered to have a **moderate negative** cumulative effect in relation to SEA objective 5.1 for the Bournemouth WRZ. This is related to the embodied carbon associated with these options. The SRO options and BNW14 are anticipated to contribute more towards this due to the extent of the infrastructure required. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 5.1 cannot be confirmed at this stage. However, the HLS did identify that option ROA21 and dR2 are likely to require substantial new infrastructure and ongoing energy consumption, resulting in an increase in embodied and operational carbon. Option dRS15/E may require additional minor infrastructure and therefore has potential to result in an increase in carbon emissions. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 5.1 cannot be confirmed at this stage. However, the HLS did identify that options WIM14, dW1 and dW4 therefore has potential to result in an increase in carbon emissions. As WIM18 is an SRO which involves extensive new infrastructure, the carbon associated with this would likely be significant. In relation to the demand options, there is potential for **minor negative** cumulative effects on objective 5.2 across the SWW region. This is associated with vehicle movements and the embodied carbon in relation to items such as water meters, water efficiency devices and pipework.	therefore an increase in operational carbon required to treat and pump the additional water. This plan is considered to have a **moderate negative** cumulative effect in relation to SEA objective 5.1 for the Bournemouth WRZ. This is related to the increased abstraction and therefore an increase in operational carbon required to treat and pump the additional water. Furthermore, there is anticipated to be a high energy demand in relation to pumping water large distances (as per BNW7 and BNW14). All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 5.1 cannot be confirmed at this stage. However, the HLS did identify that option ROA21 and dR2 are likely to require substantial new infrastructure and ongoing energy consumption, resulting in an increase in embodied and operational carbon. Option dRS15/E may require additional minor infrastructure and therefore has potential to result in an increase in carbon emissions. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 5.1 cannot be confirmed at this stage. However, the HLS did identify that options WIM14, dW1 and dW4 therefore has potential to result in an increase in carbon emissions. As WIM18 is an SRO which involves extensive new infrastructure, the carbon associated with this would likely be significant. In relation to the demand options, there is potential for **major positive** cumulative effects on objective 5.1 across the SWW region. If demand is reduced, less water is required to be pumped and treated across the region, resulting in a lower operational energy and thus less carbon produced.
	5.2	**Reduce vulnerability to**	This plan is considered to have a **neutral** cumulative effect on SEA objective 5.2 across the Colliford WRZ during	This plan is considered to have both a **minor negative** and **minor positive** cumulative effect on SEA objective 5.2 during

Theme	Objective		Construction Narrative	Operation Narrative
		climate change risks and hazards	construction. This is related to the limited construction required and the distance between the options. This plan is considered to have a **neutral** cumulative effect on SEA objective 5.2 across the Bournemouth WRZ during construction. Although all options other than dB2 require significant construction, which may result in temporary vulnerability to risks such as flooding, the options are considered sufficient distance away for these effects not to be cumulative. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 5.2 cannot be confirmed at this stage. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 5.2 cannot be confirmed at this stage.	operation in the Colliford region. Minor negative effects are related to the increased abstraction, which could lead to effects of drought worsening. However, as there are three drought options in the region, these options are anticipated to relieve some water stress in times of drought. This plan is considered to have a **minor positive** cumulative effect on SEA objective 5.2 during operation in the Bournemouth region. This is associated with new water supplies in the region reducing demand on the existing sources and making the area more resilient in times of drought. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 5.2 cannot be confirmed at this stage. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 5.2 cannot be confirmed at this stage.
Historic Environment	**6**	**Conserve, protect and enhance the historic environment, including archaeology**	This plan is considered to have an overall **neutral** cumulative effect on SEA objective 6.1 during construction within the Colliford region. Although COL15 has the potential for an adverse effect on a Registered Park and Garden, the distance between the options mean cumulative effects are unlikely. This plan is considered to have an overall **minor negative cumulative** effect on SEA objective 6.1 during construction within the Bournemouth region. This is particularly so for BNW14 and BNW7 which consists of large pipelines, which could negatively affect previously undiscovered archaeology. Construction traffic and certain activities which cause vibrations could also affect designated historic assets. Some of these effects could be long-lasting or even permanent.	This plan is considered to have a **neutral** cumulative effect on SEA objective 6 in the Colliford WRZ. Although individual options may have the potential to effect water dependent heritage assets, the options are located near different waterbodies therefore cumulative effects should not exist. This plan is considered to have a **neutral** cumulative effect on SEA objective 6 in the Bournemouth WRZ. Although individual options may have the potential to effect water dependent heritage assets, the options are located near different waterbodies therefore cumulative effects should not exist. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time

Theme	Objective		Construction Narrative	Operation Narrative
			All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 6 cannot be confirmed at this stage. The HLS did identify that option dRS15/E does directly encroach on to a World Heritage Site, Listed Buildings and a Scheduled Monument and ROA21 directly encroaches onto a Registered Park and Garden. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 6 cannot be confirmed at this stage. The HLS did identify that option WIM14 has potential to directly affect Listed Buildings, and option dW1 is located within 500m of four Scheduled Monuments. For the demand options, there is potential for **minor negative** effects associated with the construction stage of the distribution options. However, these effects are likely to be minor, temporary and localised. Therefore, these effects are not anticipated to contribute towards adverse cumulative effects across the SWW region.	the cumulative effects on SEA objective 6 cannot be confirmed at this stage. The HLS did identify that option dRS15/E does directly encroach on to a World Heritage Site, Listed Buildings and a Scheduled Monument and ROA21 directly encroaches onto a Registered Park and Garden. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 6 cannot be confirmed at this stage. The HLS did identify that option WIM14 has potential to directly affect Listed Buildings, and option dW1 is located within 500m of four Scheduled Monuments.
Landscape	**7**	**Conserve, protect and enhance landscape, townscape and seascape character and visual amenity**	This plan is considered to have a **neutral** cumulative effect on SEA objective 7, during the construction phase within the Colliford WRZ. Although each option may result in temporary landscape effects, associated with a construction compound, the options are sufficient distance apart to not have cumulative effects. This plan is considered to have a **minor negative** cumulative effect on SEA objective 7, during the construction phase within the Bournemouth WRZ. Options BNW1 and BNW14 are located adjacent to the New Forest National Park. Furthermore, option dB2 is located within an AONB. Construction activities may affect the setting of these landscape areas. Larger construction activities associated with	This plan is considered to have a **neutral** long-term cumulative effect on SEA objective 7 within the Colliford WRZ. This plan is considered to have a **neutral** long-term cumulative effect on SEA objective 7 within the Bournemouth WRZ. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 7 cannot be confirmed at this stage. The HLS did identify that ROA21 directly encroaches an AONB and is within 200m of a National Park. Option dR2 is within 200m of an AONB and option dRS15/E is located within an AONB.

Theme	Objective		Construction Narrative	Operation Narrative
			pipelines may also affect views and the setting of the countryside. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 7 cannot be confirmed at this stage. The HLS did identify that ROA21 directly encroaches an AONB and is within 200m of a National Park. Option dR2 is within 200m of an AONB and option dRS15/E is located within an AONB. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 7 cannot be confirmed at this stage. The HLS did identify that option dW4 is located within Exmoor National Park. Construction activities may affect the setting of these landscape areas. Larger construction activities associated with pipelines may also affect views and the setting of the countryside.	The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 7 cannot be confirmed at this stage. The HLS did identify that option dW4 is located within Exmoor National Park.
Population and Health	**8.1**	**Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing**	This plan is considered to have both a **minor negative** and **moderate positive** cumulative effect on SEA objective 8.1, during the construction phase within the Colliford region. Positive effects are related to the potential economic benefits during construction. The minor negative effects are associated with the potential for increased traffic and nuisance during construction. This plan is considered to have both a **minor negative** and **major positive** cumulative effect on SEA objective 8.1, during the construction phase within the Bournemouth region. Positive effects are related to the potential economic benefits during construction. This is particularly so for the SRO options which require extensive construction work. BNW14 is also expected to require significant construction and economic benefit to the area. The minor negative effects are associated with the potential for increased traffic and nuisance during construction.	This plan is considered to have a **moderate positive** effect on SEA objective 8.1 in the Colliford region. This is associated with the ongoing operational costs of the options, which may bring an economic benefit to the area. This plan is considered to have a **moderate positive** effect on SEA objective 8.1 in the Bournemouth region. This is associated with the ongoing operational costs of the options, which may bring an economic benefit to the area. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 8.1 cannot be confirmed at this stage. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time

Theme	Objective		Construction Narrative	Operation Narrative
			All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 8.1 cannot be confirmed at this stage. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 8.1 cannot be confirmed at this stage.	the cumulative effects on SEA objective 8.1 cannot be confirmed at this stage. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 8.1 cannot be confirmed at this stage. For the demand options, there is potential for a **minor positive** cumulative effect on objective 8.1. If demand is reduced, resilience may be improved across the SWW region. Furthermore, costs would be lower for customers as consumption decreases and the cost of pumping and treating water would also be reduced.
	8.2	**Maintain and enhance tourism and recreation**	This plan is considered to have an overall **minor negative** cumulative effect on SEA objective 8.2 during construction in the Colliford region. This is related to construction activities including increased traffic potentially affecting tourism and recreation. This is especially so in Colliford which sees such a high tourist footfall particularly in the summer months. This would be more significant if the drought options were bought forward at the same time. This plan is considered to have an overall **minor negative** cumulative effect on SEA objective 8.2 during construction in the Bournemouth region. This is related to construction activities including increased traffic potentially affecting tourism and recreation. Options BNW7 and BNW14 require significant construction over a large area, which may cause disruption for a long period of time. This may be particularly disruptive in the summer months during the tourist season. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 8.2 cannot be confirmed at this stage.	This plan has the potential to result in a **minor negative** cumulative effect on the SEA objective 8.2 during operation within the Colliford region. This is related to increased abstraction which could affect certain recreational activities. Although the options relate to different waterbodies, if water levels are affected across the region, this may inhibit certain activities. This plan has the potential to result in a **neutral** cumulative effect on the SEA objective 8.2 during operation within the Bournemouth region. This is related to the different option types in the Bournemouth WRZ meaning that cumulative effects on recreation and tourism are not anticipated. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 8.2 cannot be confirmed at this stage. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the

Theme	Objective		Construction Narrative	Operation Narrative
			The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 8.2 cannot be confirmed at this stage. For the demand options, there is potential for **minor negative** effects on objective 8.2 associated with the construction stage of the distribution options. This related to potential nuisance such as road closures and diversions which may need to be in place whilst work is carried out. However, these effects are likely to be minor, temporary, and localised. Therefore, these effects are not anticipated to contribute towards adverse cumulative effects across the SWW region.	cumulative effects on SEA objective 8.2 cannot be confirmed at this stage.
Material Assets	**9.1**	**Minimise resource use and waste production**	This plan is anticipated to have **minor negative** cumulative effects on SEA objective 9.1 during the construction phase across respective WRZs and across Colliford WRZ. This is related to the cumulative use of resources and creation of waste during construction. This plan is anticipated to have **moderate negative** cumulative effects on SEA objective 9.1 during the construction phase across respective WRZs and across Bournemouth WRZ. This is related to the cumulative use of resources and creation of waste during construction. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 9.1 cannot be confirmed at this stage. It is likely that construction will involve the use of resources and generation of waste. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 9.1 cannot be confirmed	This plan is considered to have a **minor negative** cumulative effect on SEA objective 9.1 during operation within the Colliford region. This is associated with the increased volume of abstraction and the energy required to pump and treat the water. This plan is considered to have a **moderate negative** cumulative effect on SEA objective 9.1 during operation within the Bournemouth region. This is associated with the energy required to pump and transfer water around the region. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 9.1 cannot be confirmed at this stage. It is likely that energy would be required for the additional pumping and treatment of water during operation. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 9.1 cannot be confirmed

Theme	Objective		Construction Narrative	Operation Narrative
			at this stage. It is likely that construction will involve the use of resources and generation of waste. For the demand options, there is potential for a **minor negative** cumulative effect in relation to objective 9.1. When scaled across the whole SWW region, materials for meter upgrades, water efficiency improvements and reducing leakage are likely to be significant.	at this stage. It is likely that energy would be required for the additional pumping and treatment of water during operation.
	9.2	**Avoid negative effects on built assets and infrastructure**	This plan is likely to result in cumulative **neutral** effects on SEA objective 9.2 during construction in the Colliford region due to the nature of the options. This plan is likely to result in cumulative **neutral** effects on SEA objective 9.2 during construction in the Bournemouth region. Although there may be localised effects, this is not anticipated to result in cumulative effects. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 9.2 cannot be confirmed at this stage. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 9.2 cannot be confirmed at this stage.	This plan is likely to result in a **neutral** cumulative effect on SEA objective 9.2 during operation within the Colliford WRZ. This plan is likely to result in a **neutral** cumulative effect on SEA objective 9.2 during operation within the Bournemouth WRZ. All of the options in the Roadford WRZ have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 9.2 cannot be confirmed at this stage. The options in the Wimbleball WRZ consist of the SRO WIM18, supply option WIM14 and drought options dW2 and dW4. WIM14, dW1 and dW4 have undergone HLS however have not yet undergone SEA. Therefore, at this time the cumulative effects on SEA objective 9.1 cannot be confirmed at this stage.

10.3.1 During the construction phase of this plan, 12 of the SEA objectives are anticipated to have a negative short-term effect. This is partly due to a number of options being in close proximity to one another. For some factors, such as air quality, carbon emissions and economic benefit, it is not necessarily the spatial proximity of the options, rather the build-up of a certain factor e.g. emissions or money which can affect the whole SWW region. This plan also presents a number of clustered options, which present the risk of cumulative effects on designated sites, and environmental assets as well as an increased risk of disturbance to local communities. These negative effects would be predominantly experienced across the biodiversity, water, soils, air, climate change, population and health and material asset SEA objectives. Ecological sites such as the Avon Valley SAC, SPA and Ramsar have been identified as being at risk of cumulative effects due to their close proximity to multiple options however, it is anticipated that through appropriate mitigation these risk can be mitigated. Areas of priority habitat are potentially at risk of cumulative effects as a result of degradation from construction activities. During construction there is the potential for positive effects associated with population and health SEA objectives, due to economic benefits during the construction phase.

10.3.2 Long-term negative operational effects are likely to be experienced across eight SEA objectives, with specific reference to water and climate, due to the options resulting in an increase in operational carbon emissions. There is anticipated to be cumulative effects experienced across several waterbodies, such as the river Avon and Stour (Lower) as a result of over-abstraction and changes to flow and water quality.

10.3.3 The demand options offer several opportunities across the region, associated with reducing the volume of water that is abstracted, treated and pumped across the SWW region. This may also benefit water dependent habitats and biodiversity through retaining more water in the natural environment. Although the construction stage may lead to high emissions (related to vehicle movements and embodied carbon of materials), the energy saving through reduced pumping and treatment of water could result in a major positive cumulative effect on the climate objective 5.1.

10.4 Adaptive Plan

WRMP guidance describes an adaptive plan as "*a framework which allows you to consider multiple preferred programmes or options*". SWW's current adaptive plan sets out the options which are anticipated to be included within the alternative plans. A full cumulative assessment of the plan alternatives will be undertaken within the next revision of this report, as at the time of writing no alternative plans have been provided. Therefore, a high level overview of the adaptive plan is presented below.

The options within the adaptive plan include all of the options in the BVP, alongside the following supply options:

- COL22 - Roadford to Colliford via Saltash
- WIM5 - Indirect potable reuse - stream support for Dotton WTW
- ROA17 – Littlehempston
- ROA7 – Northcombe
- WIM11 - Couchill Springs, Seaton
- WIM12 - Allers Springs
- WIM2 - Sidford borehole commissioning

All of these options have undergone SEA, apart from COL22, which has undergone an HLS. A full SEA and technical environmental assessments for COL2 will be undertaken in Autumn 2023 and included within the next revision of this report. At the time of writing no construction or

operational timeframes have been provided and a worst case approach has been taken. A full review of the adaptive plan will be required to determine any further cumulative effects.

Table 10.3: Adaptive Plan short term (construction) SEA summary

Option Ref	ST / LT	SEA Topics															
		Biodiversity			Water			Soil	Air	Climate		Hist. Env	Landscape	Population and Health		Material assets	
		1.1	1.2	1.3	2.1	2.2	2.3	3	4	5.1	5.2	6	7	8.1	8.2	9.1	9.2
COL22	ST	High Level Screening undertaken; SEA not yet completed															
WIM5	ST	-	-	-	--	-	0	-	-	-	0	-	-	- ++	-	-	-
ROA17	ST	-	-	-	-	-	0	-	-	--	-	--	-	- +++	-	--	-
ROA7	ST	-	-	-	-	0	0	-	-	--	0	0	-	+ +	0	-	-
WIM11	ST	0	0	0	0	-	0	0	-	-	-	-	0	- +	-	-	-
WIM12	ST	0	-	0	-	0	0	0	-	0	0	-	-	+	-	-	0
WIM2	ST	0	-	-	-	-	0	-	-	-	0	0	-	- +	-	-	0

Table 10.4: Adaptive Plan long term (operation) SEA summary

Option Ref	ST / LT	SEA Topics															
		Biodiversity			Water			Soil	Air	Climate		Hist. Env	Landscape	Population and Health		Material assets	
		1.1	1.2	1.3	2.1	2.2	2.3	3	4	5.1	5.2	6	7	8.1	8.2	9.1	9.2
COL22	LT	High Level Screening undertaken; SEA not yet completed															
WIM5	LT	0	-	0	-	0	- +	0	0	-	-	0	0	0	0	-	0
ROA17	LT	0	-	0	-	0	- +	0	0	0	- +	0	0	- +	-	-	-
ROA7	LT	-	-	0	--	0	- +	0	0	-	- +	0	0	+	0	-	0
WIM11	LT	0	0	-	-	- +	+	-	0	0	- +	0	0	0	0	-	0
WIM12	LT	0	-	0	-	0	- +	0	0	0	- +	0	0	0	-	-	0
WIM2	LT	0	-	0	--	0	- +	-	0	0	-	0	0	+	0	-	0

Construction

10.4.1 No major negative effects have been identified for any of these options during construction.

10.4.2 Moderate negative effects have been identified associated with water objective (2.1), climate objective (5.1), historic environment objective (6) and material assets objective (9.1).

10.4.3 Minor negative effects have been identified across all objectives during construction, with the exception of objective (2.3).

10.4.4 A major positive and moderate positive effect has been identified associated with population and human health objective (8.1), with moderate positive effects predicted for WIM5 and minor positive effects for the remaining options during construction.

Operation

10.4.5 No major negative or positive effects have been identified for any of these options during operation.

10.4.6 Moderate negative effects have been identified associated with water objective (2.1) for option WIM2 and ROA7.

10.4.7 Minor negative effects have been identified across all objectives during operation, with the exception of objective (2.3), water and (4), air (6) historic environment and (7) landscape.

10.4.8 Minor positive effects have been identified for water objectives (2.3) for all options with minor positive effects experienced across water objective (2.2), climate objective (5.2) and population and human health objective (8.1) across a number of options during operation.

10.4.9 There is potential that the identified minor and moderate negative effects could result in negative cumulative effects across the SWW region. The Adaptive Plan introduces four additional options in the Wimbleball WRZ, which could result in exacerbated cumulative effects due to the spatial closeness of the Wimbleball options. Furthermore, the additional three options ROA7, ROA17 and COL22 could further contribute to negative cumulative effects in the Colliford and Roadford WRZs. There are no additional options in the Adaptive Plan located within the Bournemouth WRZ.

10.4.10 Likewise, the Adaptive Plan has potential for positive cumulative effects, particularly relating to improving water resilience and the economy. Additional options in the Wimbleball WRZ could bring forward additional water resources, jobs and funding to the area and the additional options could further enhance positive cumulative effects in the Colliford and Roadford WRZs. There are no additional options in the Adaptive Plan located within the Bournemouth WRZ.

10.5 Inter Cumulative Effects

10.5.1 Cumulative (Inter) effects of the WRMP24 with other relevant plans, programmes and projects have been considered against the methodology outlined in **Section 8.4**. These include the following:

- South West Water Final Drought Plan (2022);[66] / [67]
- South West Water Isles of Scilly Draft Final Drought Plan (September 2022)[68]

[66] South West Water (2022) *Revised Draft South West Drought Plan.* Available at: https://www.southwestwater.co.uk/environment/a-precious-resource/drought-plan/

[67] South West Water (2022) *Bournemouth Water Final Drought Plan*. Available at: https://www.southwestwater.co.uk/siteassets/document-repository/environment/sww-bw-final-drought-plan-september-2022.pdf

[68] South West Water (2022) *Isles of Scilly Draft Drought Plan*. Available at: https://www.southwestwater.co.uk/siteassets/document-repository/environment/sww-bw-final-drought-plan-september-2022.pdf

- SWW and Bournemouth Water Final Water Resource Management Plan (2019);[69]
- Neighbouring water companies' WRMP and Drought Plans:
  - Wessex drought plan[70]; and
  - Southern Water drought plan[71]
  - Bristol Water drought plan[72]
  - Wessex Water dWRMP24[73]
  - Bristol dWRMP24[74]
  - Southern Water dWRMP24[75]
- National Policy Statements[76] and National / Regional Infrastructure Plans[77];
- Canal & River Trust Management Plans[78];
- Relevant Local Development Frameworks;
- Environment Agency Drought Response: our framework for England[79]; and
- Relevant Major projects.

South West Water Drought Plan (Bournemouth Water Final Drought Plan)

10.5.2 The Bournemouth Drought Plan sets out the framework of possible actions in relation to implementing drought actions for the WRZ. These include demand-side drought actions, supply-side drought actions and support to private and non-public water supplies and environmental drought.

10.5.3 The report identified four WRZ including Colliford, Roadford, Wimbleball and Bournemouth. Demand actions where feasible will be implemented prior to supply actions at the same drought level.

10.5.4 Each of the WRZs have been identified as being principally reliant on large strategic reservoirs. In line with the Environment Agency guidelines SWW have categorised drought by severity ranging from Level 1 (less severe) to Level three (very severe). At each level there are specific demand reduction measures should be implemented ranging from communication campaigns, increased leakage controls for level one, to temporary bans under level two and finally non-essential use bans for level three droughts. Additionally, further supply options have been identified across the supply network detailed in **Table 10.5** below.

[69] South West Water (2019) *SWW and Bournemouth water final water resource management plan*. Available at: https://www.southwestwater.co.uk/siteassets/document-repository/environment/sww-bw-wrmp19---finalplan_aug2019.pdf

[70] Wessex Water (2022) *Drought Plan*. Available at: https://www.wessexwater.co.uk/environment/water-resources/drought-plan

[71] Southern Water (2019) *Drought Plan*. Available at: https://www.southernwater.co.uk/our-story/water-resources-management-plan/our-drought-plan

[72] Bristol Water (2022) *Drought Plan*. Available at: https://7850638.fs1.hubspotusercontent-na1.net/hubfs/7850638/Bristol%20Water%20Final%20Drought%20Plan%20April%202022%20v1%20REDACTED-1.pdf

[73] Wessex Water (2022) *Water Resources Management Plan.* Available at: https://www.southernwater.co.uk/our-story/water-resources-management-plan/draft-wrmp-24-technical-documents

[74] Bristol Water (2023) Water Resource Management Pla, Avalaible at: Water Resources (bristolwater.co.uk)

[75] Southern Water (2022) *Draft WRMP24 Technical Documents*. Available at: https://www.southernwater.co.uk/our-story/water-resources-management-plan/draft-wrmp-24-technical-documents

[76] Planning Inspectorate *National Policy Statements*. Available at: https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/national-policy-statements/

[77] Planning Inspectorate *National Infrastructure Planning* Available at: https://infrastructure.planninginspectorate.gov.uk/projects/

[78] Canal and River Trust (2020) *Ways to Save Water*. Available at: https://canalrivertrust.org.uk/specialist-teams/managing-our-water/ways-to-save-water

[79] Environment Agency (2017) *Drought Response: our framework for England*. Available at: https://www.gov.uk/government/publications/drought-management-for-england

Table 10.5: Supply Demand Options

WRZ	Drought Severity	Return Period	Actions
Colliford	Level one	>1 in 500 years	Restormel Abstraction Licence – Drought Permit to allow additional abstraction during the winter
	Level two	>1 in 500 years	Porth Reservoir and Rialton Intake – Recommissioning reservoir and former river intake
	Level three	>1 in 500 years	West Cornwall minor sources – Recommissioning of licensed, disused sources
Roadford	Level one	1 in 200 to 500 years	Roadford Reservoir Winter Pumped Storage – Drought Permit to recharge reservoir in the winter
	Level two	c. 1 in 500 years	Slade – Recommissioning of licensed, disused reservoir
	Level three	>1 in 500 years	Challacombe Reservoir – Drought permit to allow use of disused reservoir
Wimbleball	Level one	1 in 200 to 500 years	North Exeter Boreholes – Recommissioning of licensed, disused borehole sources
	Level two	>1 in 500 years	Wimbleball Spring Sources – Drought Permit to allow additional abstraction during the winter
	Level three	>1 in 500 years	Wimbleball Compensation Flow – Drought permit to change compensation flow
Bournemouth	Level one	>1 in 500 years	N/a
	Level two	>1 in 500 years	Wimborne WTW – Recommissioning of licensed, disused well source
	Level three	>1 in 500 years	Stanbridge Licence – Drought permit to increase abstraction licence

10.5.5 The Drought Plan outlines demand measures that align with the existing proposed WRMP24 options. Whilst their concurrent implementation might exacerbate some of the potential adverse effects, specifically in relation to construction effects such as noise, air quality, community and transport nuisance associated with increased vehicles movements these are likely to be negligible and overall the positive cumulative effect of water resilience and resource availability are likely to be beneficial.

SWW Isles of Scilly Draft Drought Plan

10.5.6 The Isles of Scilly have been included as a separate section of the South West Water Drought Plan due to the geographically remote nature. A technical draft plan has been developed to set out how drought will be managed across the islands.

10.5.7 Drought actions have been provided for each of the five islands including both demand and supply side actions including:

- Demand:
  - Annual media campaigns;
  - Community Drought Liaison;
  - Increased leakages controls;
  - Temporary use bans; and
  - Non-essential use bans.
- Supply:
  - Optimising sources and outage minimisation;
  - Tankering;
  - Increased storage; and
  - Approach 3rd party resource owners for potential spare water availability.

WCWRG Draft Regional Water Resources Plan

10.5.8 The draft Regional Water Resources Plan (RWRP) for the south west of England sets out the long-term water needs for the region up to 2050 and explores options to respond to those needs. The draft RWRP was published for consultation in early 20222 and a final plan is expected to be published in late 2023.

10.5.9 The draft RWRP provides an overview of potential supply options that are being investigated in the west country. Strategic regional solutions are options that generate new water resources and enable the new water resources to be used regionally. They involve more than one water company and will provide a significant (typically more than 10Ml/d) yield. Option types include effluent reuse, new and enhancement to existing reservoirs, abstraction from rivers and desalination.

10.5.10 Abstraction from rivers was not considered a preferred option, as the application of tighter environmental flow indicators on river abstractions means that for the majority of rivers in the west country region, additional abstraction in summer may require further upstream support of the river. Desalination was also not preferred because desalination plants have a high carbon footprint and high maintenance costs when only operating intermittently to meet demands during times of water scarcity. In addition, they generate a highly saline waste stream which is difficult to dispose of.

10.5.11 As previously mentioned within the ER, the SROs that have been taken forward in the draft RWRP are Mendip Quarries, Poole Effluent Reuse and Cheddar Two Reservoir. The potential effects of each of the SROs have undergone sperate environmental assessment which is summarised in Section 9.9.

Neighbouring water companies' WRMPs

10.5.12 The neighbouring WRMPs including Southern Water, Bristol Water and Wessex Water have been considered for potential cumulative effects.

10.5.13 For Wessex Water, in previous WRMPs (2014 and 2019) a supply surplus was identified, therefore no supply options had been put forward. Therefore, WRMP24 presents new challenges in meeting this new deficit. Currently, Wessex Water operates a single integrated WRZ and meets the majority of its demand through groundwater resources. Wessex water also receives imports from other water companies, including SWW (1.31 Ml/d annual average).

10.5.14 Wessex Water's WRMP has identified 59 supply options and 16 demand options to meet the forecast deficit due to factors such as climate change, a move to 1 in 500 drought resilience and Wessex Water's environmental destination work (which leads to a ~60-80Ml/d reduction in abstraction licences to protect, in particular, chalk streams).

10.5.15 The supply options in Wessex Water's WRMP24 consist of water transfers, new reservoirs, groundwater, WTW upgrades and a desalination option. From a review of the publicly available information within the WRMP24, there are not anticipated to be adverse cumulative effects due to the location and nature of the options presented in the plan. However, there is the option 'SWW Reservoir Pump Storage - Tiverton to Taunton Transfer' which has potential to cause adverse effects if this reservoir is also within SWW's plan. This should be considered further as options are progressed and more information is made available.

10.5.16 The Southern Water Region is divided into three sub-regional areas which are made up of 14 WRZs. The WRZs which abut the SWW boundary are Hants Southampton West and Hants Rural, which lie within the western sub-regional area. Water supply in the Hants Southampton West WRZ comes from 100% surface water, and the water supply in Hants Rural is from 100% groundwater.

10.5.17 There are 12 supply options within these WRZs assessed within the SEA. Two of these options have significant effects post mitigation, however these relate to effects on population and human health following temporary use bans. These options are location specific and as such, there are not anticipated to be adverse cumulative effects with SWW's WRMP.

10.5.18 Bristol Water's WRMP24 covers the city of Bristol and the towns and villages within a 40km radius of the city centre.

10.5.19 The preferred plan is made up of a selection of leakage options and demand reduction policies selected through Bristol Water's modelling and programme appraisal processes. These options were shown to meet the supply-demand balance, without the need for supply options. Modelling of a 'High demand scenario' and 'Plausible worst case climate change and demand' were shown to result in Bristol Water needing supply options to meet an additional supply demand deficit, however, not until after 2060.

10.5.20 As such, there are not anticipated to be any cumulative effects associated with the Bristol Water WRMP.

Neighbouring water companies' Drought Plans

10.5.21 The neighbouring Drought Plans including Southern Water and Wessex Water have been considered for potential cumulative effects.

10.5.22 The Southern Water Drought Plan published in 2019 allows water companies to introduce a wider range of temporary restrictions when resources are under pressure, including temporary bans, restrictions and permits, media campaigns to influence water use, leakage control, mains pressure reduction and management. Further operational responses include:

- Maximising abstraction from run-of-river sources;
- Maximising pumping from groundwater sources;
- Increasing company transfers from areas not as at risk of drought;

- Inter-company bulk transfers including tankering (agreements with neighbouring water companies);
- Re-commissioning of unused sources;
- Enhancing abstraction at existing sources;
- Distribution network modifications;
- Construction of new satellite boreholes; and
- Wastewater recycling.

10.5.23 Southern Water have identified 70 drought management options during screening of which 20 are situated to west of the region with the potential to directly or indirectly interface with SWW. Due to the location and type of option these are not anticipated to result in any in combination effects or adverse cumulative effects. However positive effects will include the secure resilient water resources across the region.

10.5.24 The Wessex Water Drought Plan published in June 2022 outlines a number of management actions that can be taken during periods of dry weather to maintain and improve water resources including:

- Water efficiency and metering;
- Leakage management; and
- Temporary use bans.

10.5.25 Further supply side actions have been identified for operation of stream support, transfers with neighbouring water companies including Bristol Water, Thames Water, SWW, Veolia Water Projects and Southern Water and drought permits and orders. The Wessex Water WRMP19[80] outlines seven resource options including desalination, new reservoirs, river abstraction, effluent reuse and improved treatment processes. The Overall aim of the Wessex Water WRMP19 and Drought Plan aligns with the SWW vision for reducing demand and increasing water security. Therefore, no cumulative effects are anticipated as a result of the water demand and supply options.

10.5.26 Bristol Water published its drought plan in 2022. The following actions will be taken to manage any drought event:

- An increased management focus on water resources;
- As a drought progresses this will extend to actions taken to reduce demand;
- These actions will range from public communication and engagement events, water efficiency programmes and education; to temporary use bans on garden watering or more stringent restrictions in the event of prolonged drought; and
- Actions to increase available supply will range from temporary variations to bulk supply arrangements, to drought permits to vary our abstraction licence conditions.

10.5.27 As these actions are localised and largely focus on reducing demand, no cumulative effects are anticipated.

National Policy Statements and National Infrastructure Plans

10.5.28 At the time of writing there are not anticipated to be any national or regional developments that could result in cumulative effects identified within National Policy Statements or National and Regional Infrastructure Plans. However, the following National Infrastructure Planning Applications have been acknowledged within the SWW region (**Table 10.6**).

[80] Wessex Water (2019) *WRMP19*. Available at: https://www.wessexwater.co.uk/-/media/files/wessexwater/environment/wessex-water-final-wrmp19_01_08_2019_publicwebsite

Table 10.6: National Infrastructure Planning Applications

Council	Project Description	Licencing Authority	Status
Cornwall	A30 Chiverton to Charland Cross Scheme	Highways England	Decided
	A30 Temple to Higher Carblake Improvement	Highways England	Decided
Devon	Bere Alston to Tavistock Railway Reinstatement and Associated Trails/	Devon County Council	Pre-Application

Canal & River Trust Management Plans

10.5.29 The Canal & River Trust is carrying out essential maintenance on reservoirs across the UK to ensure the long- term integrity and safe secure water supply provided to the canal network. Further initiatives include water saving aerator, not leaving water running, use most resource efficient equipment, make sure there are no leaks, minimise water use, recycle grey water. However, it is noted that the Canal and River Trust don't currently have any active projects across the SWW region, as such there is not anticipated to be any adverse cumulative effects.

Relevant Local Development Plans

10.5.30 The following planning websites have been reviewed to determine any cumulative and in-combination effects, including:

- Cornwall Council Local Development Plan (2016)[81] and online planning portal[82];
- East Devon District Council Local Development Plan (2016)[83] and online planning portal[84];
- Exeter City Council Core Strategy (2012)[85] and online planning portal[86];
- Mid Devon District Council Local Development Plan (2020)[87] and online planning portal[88];
- North Devon and Torridge District Councils Joint Local Development Plan (2018)[89] and North Devon District Council[90] and Torridge District Council online planning portals;
- Plymouth and South West Devon Joint Local Plan (2019)[91], Plymouth City Council[92], South Hams District Council[93] and West Devon Borough Council[94] online planning portals;
- Teignbridge District Council Local Plan (2014)[95] and online planning portal[96];

[81] Cornwall County Council Local Development Plan (2016). Available at: https://www.cornwall.gov.uk/media/ozhj5k0z/adopted-local-plan-strategic-policies-2016.pdf

[82] Cornwall County Council Planning Portal (2023). Available at: https://www.cornwall.gov.uk/planning-and-building-control/planning-applications/online-planning-register/

[83] Devon County East Devon Local Development Plan (2016). Available at: https://eastdevon.gov.uk/media/1772841/local-plan-final-adopted-plan-2016.pdf

[84] East Devon District Council Planning Portal (2023). Available at: https://eastdevon.gov.uk/planning/

[85] Exeter City Council Core Strategy (2012). Available at: https://www.exeter.gov.uk/media/1636/adopted-core-strategy.pdf

[86] Exeter City Council Planning Portal (2023). Available at: https://www.exeter.gov.uk/planning-services/

[87] Mid Devon District Council Local Development Plan (2020). Available at: https://www.middevon.gov.uk/media/350631/local-plan-review-final-adopted-version_accessible.pdf

[88] Mid Devon District Council Planning Portal (2023). Available at: https://www.middevon.gov.uk/residents/planning/

[89] North Devon and Torridge District Councils Joint Local Development Plan (2018). Available at: https://consult.torridge.gov.uk/kse/folder/91954

[90] North Devon District Council Planning Portal (2018). Available at: https://planning.northdevon.gov.uk/Search/Advanced

[91] Plymouth and South West Devon Joint Local Development Plan (2019). Available at: https://www.southhams.gov.uk/jointlocalplan

[92] Plymouth City Council Planning Portal (2023). Available at: https://www.plymouth.gov.uk/planning-applications

[93] South Hams District Council Planning Portal (2023). Available at: https://www.southhams.gov.uk/planning-comment

[94] West Devon Borough Council Planning Portal (2023). Available at: https://www.westdevon.gov.uk/planning-comment

[95] Teignbridge District Council Local Development Plan (2014). Available at: https://www.teignbridge.gov.uk/media/1669/local-plan-2013-33.pdf

[96] Teignbridge District Council Planning Portal (2023). Available at: View and comment on planning applications and appeals - Teignbridge District Council

- Dorset District Council's Local Development Plans (West Dorset, Weymouth, and Portland (2016), Purbeck (2012), North Dorset (2016), East Dorset and Christchurch (2014), and Swanage (2017)))[97] and online planning portal[98];
- Somerset Recovery and Growth Plan[99] and online planning portal[100];
- Somerset District Council's Local Development Plans (Mendip (2021), Sedgemoor (2019), South Somerset (2015) and Somerset West and Taunton (2016))[101] and
- Bournemouth (2012), Christchurch (2014) and Poole (2018) (BCP Council) Local Development Plans [102] and online planning portal[103].

10.5.31 Following the review of each Council's local development plans and planning portals, large-scale residential developments have been identified across the region as set out in **Table 10.7**. Due to the high volume of planning applications, only those which are over 100 dwellings that have been granted in the last three years are listed. Once granted, work at the site must begin within three years, therefore construction for these developments should have already started, or be due to commence in the next three years, leading into the WRMP24 period. Due to the nature of some planning portals not having an advanced search function or map, this list may not be exhaustive of all planning applications. Furthermore, additional planning applications will be submitted during the WRMP24 period. However, these applications do provide an overview of areas where development is anticipated to be high over the coming years and may present a risk of cumulative effects.

Table 10.7: Local developments

Local Planning Authority	Proposed Development	Application Number	Date of decision
Cornwall	Outline permission for 320 dwellings, 400 student beds, up to 16,500sqm of non-residential floorspace.	PA21/04889 Approved with conditions.	11/10/2023
	Reserved matters for 387 dwellings.	PA21/01757 Approved with conditions	15/06/2021
	Outline permission for up to 225 residential dwellings.	PA21/00704 Approved with conditions	28/04/2023
	Hybrid planning application including development of up to 3550 dwellings.	PA20/09631 Approved with conditions	05/04/2022
	Hybrid planning application for 265 dwellings.	PA20/07184 Approved with conditions	28/10/2020
	Reserved matters for 346 dwellings 5452sqm of non-residential floorspace	PA20/05161 Approved with conditions	21/04/2021

[97] Dorset District Councils Local Development Plans (various). Available at: https://www.dorsetcouncil.gov.uk/adopted-local-plans

[98] Dorset Council Planning Portal (2023). Available at: https://www.dorsetcouncil.gov.uk/planning-buildings-land/planning/planninghttps://www.dorsetcouncil.gov.uk/planning-buildings-land/planning-policy/dorset-council-local-plan/about-the-dorset-council-local-plan-january-2021-consultation

[99] Somerset County Council Recovery and Growth Plan (2021). Available at: https://www.somerset.gov.uk/business-and-economy/somerset-growth-plan/#:~:text=The%20Plan%20is%20based%20on%20detailed%20economic%20analysis,well%20as%2C%20longer%20term%20strategic%20ambitions%20for%20growth

[100] Somerset County Council Planning Portal. Available at: https://planning.somerset.gov.uk/

[101] Somerset District Councils Local Development Plans (various). Available at: https://www.somerset.gov.uk/waste-planning-and-land/planning-policy/

[102] Bournemouth, Christchurch and PBCP) Council Local Development Plans. Available at: https://www.bcpcouncil.gov.uk/Planning-and-building-control/Planning-policy/Current-Local-Plans/Current-Local-Plan.aspx

[103] Bournemouth, Christchurch, and Poole (BCP) Council Planning Portal (2023). Available at: https://www.bcpcouncil.gov.uk/Planning-and-building-control/Planning-and-building-control.aspx

Local Planning Authority	Proposed Development	Application Number	Date of decision
Plymouth	Full permission for 204 dwellings and 242sqm of commercial /community floorspace.	22/00878/FUL Granted subject to S106	23/12/2023
	Full permission for 102 flats, 12 dwellings, 60 bed care home.	20/01737/FUL Granted subject to S106	04/10/2023
East Devon	Reserved matters for 150 dwellings.	21/2490/MRES Approved with conditions	10/03/2023
	Reserved matters for 140 dwellings.	21/2236/MRES Approved with conditions	09/03/2022
	Partial reserved matters for 191 residential units.	21/1516/MRES Approved with conditions	17/12/2021
	Reserved matters for 112 dwellings.	21/1390/MRES Approved with conditions	17/05/2021
	Reserved matters for 311 dwellings.	20/1190/MRES Approved with conditions	16/12/2020
Mid Devon	Full permission for 200 dwellings.	17/01178/MFUL Approved with conditions	26/11/2021
Teignbridge	Full permission for 201 dwellings.	21/02674/MAJ Approved	08/03/2023
	Full permission for 128 dwellings.	19/02583/MAJ Approved	17/11/2022
	Reserved matters for 193 dwellings	19/01779/MAJ Approved	07/02/2022
	Reserved matters for 190 dwellings.	19/01767/MAJ Approved	18/09/2020
	Reserved matters for 101 dwellings.	19/01319/MAJ Approved	02/09/2021
	Reserved matters for 255 dwellings.	17/02480/MAJ Approved	19/05/2022
	Outline application for 135 dwellings.	16/02693/MAJ Approved	25/01/2022
Torridge	Outline application for 400 dwellings	1/0252/2022/OUTM Approved	23/06/2023
	Reserved matters for 276 dwellings.	1/1256/2021/REMM Approved	22/06/2023
	Full permission for 117 dwellings.	1/0880/2021/FULM Approved	11/07/2023
	Outline application for 300 dwellings.	1/0521/2021/FULM Approved	17/12/2021
	Outline application for 200 dwellings.	1/0947/2020/OUTM Approved	04/07/2022
	Outline application for 750 dwellings.	1/1015/2014/OUTM Approved	19/04/2023
West Devon	Reserved matters for 207 dwellings.	1835/23/NMM Approved with conditions	04/07/2023
	Reserved matters for 140 dwellings	2510/21/ARM Approved with conditions	20/12/2021
Exeter	Outline permission for 350 dwellings.	22/0537/OUT	31/07/2023

Local Planning Authority	Proposed Development	Application Number	Date of decision
		Approved	
	Outline permission for 285 dwellings	21/1701/OUT Approved	21/10/2023
	Outline permission for 200 dwellings	19/1375/OUT Approved	15/09/2021
	Outline permission for 400 dwellings	19/0650/OUT Approved	21/05/2021
	Outline permission for 234 dwellings	15/0640/OUT Approved	01/03/2021
Bournemouth	Outline permission for 319 apartments	7-2020-3703-M Approved	28/06/2023

Areas which have been identified as having potential for cumulative effects include;

- Applications in and around Plymouth and option ROA21;
- Applications in and around Exeter and options WIM14 and dW1; and
- Applications in and around Bournemouth and options BNW6 and BNW8.

Major Projects

10.5.32 Further review and assessment may be required to determine the potential for cumulative effects with other major projects, to include existing completed projects, approved and ongoing projects, plans or projects under consideration by consenting authorities and plans and projects that are reasonably forceable (projects which may not have submitted their application but are likely to progress in conjunction with SWW WRMP24 development, for which sufficient information is available to assess the likelihood of cumulative and in-combination effects).

10.5.33 At the time of writing no other major projects have been identified.

10.5.34 Following the determination of the preferred plan and respective options, further consideration should be taken to assess any updates to local / regional plans, programmes and / or projects such as Local Development Plans and neighbouring WRMPs which could present increased or new cumulative effects.

Environment Agency Drought response: our framework for action

10.5.35 The EA is responsible for safeguarding water resources in England and protecting the environment, with water companies ultimately responsible for managing water supplies to meet the needs of customers. The Drought Response: Our Framework for England provides a strategic overview for how drought will be managed in England to minimise damage to the environmental and to secure essential public water supply. It sets out:

- How drought affects different parts of England;
- Who is involved in managing drought and how the EA and other responsible bodies work together;
- How the EA and others take action to manage drought;
- How the EA monitor and measure the impacts of drought to advise senior management and government on the prospects and possible action; and
- How the EA report on drought and comminate with others.

10.5.36 The Framework reiterates that is it statutory for all water companies to have a drought plan in place which describes the actions they will take in the event of a drought. The following

measures have been identified as ways in which water companies can manage demand and ensure supplies remain resilient:

- Investing in new sources and supply mains;
- Maximising river abstractions and conserving reservoir storage;
- Transferring bulk supplies between water companies;
- Using peak sources;
- Moving water between supply zones to balance risk;
- Planning capital investment for severe drought scenarios;
- Working with other water companies and abstractors to identify new opportunities to share water;
- Reinforcing existing water efficiency activities;
- Reducing leakage below target levels;
- Targeting domestic metering in areas of water stress;
- Managing water pressure;
- Working with business customers to help reduce their demand; and
- Introducing temporary use bans.

10.5.37 The Devon and Cornwall Area Drought Plan (2017)[104] has also been reviewed for the potential for in-combination effects of the preferred plan with drought options. The Drought Plan was withdrawn in September 2022; however, a new version has not yet been released. The 2017 plan has therefore been included for consideration of cumulative effects, as it represents the most recent available information. The new Drought Plan should be reviewed when published to reflect changes that have been made in the intervening period and ensure that the cumulative assessment remains valid.

10.5.38 The focus of the Drought Plan is the regulation of both public and private water supply with the following actions management (resolving drought issues, document key decisions and carry out post drought reviews); monitoring (co-ordinate additional monitoring, monitor relevant drought triggers, monitor the outcome of drought actions, ensure baseline environmental monitoring is adequate for assessing drought impacts); operational (follow Environment Agency incident management procedures, implement our drought actions, monitor compliance and enforce abstraction licences and drought permits / order conditions, monitor water companies compliance and monitor drought activity in other areas where operational activity may impact customers); and communication (regular reporting, co-ordinate public relations, communicate with local and national stakeholders, share information, co-ordinate the area input into drought related reports and briefs, communicate drought activity).

10.5.39 These mechanisms offer the potential for positive in-combination effects with SWW WRMP24 as drought management and communication messages may reinforce the need for increased water efficiency, metering and drought monitoring, resulting in increased demand savings and greater stakeholder desire to conserve water resources. During this review, no cumulative adverse effects have been identified in relation to the current Environment Agency Drought Plan.

[104] Environment Agency (2017) *Devon and Cornwall Area Drought Plan*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/732390/DC_Drought_Plan_July_2017.pdf [note withdrawn Sept 2022, however new version not yet released]

10.6 Reasons for Selecting Preferred Plan

10.6.1 The SEA has informed the development of the updated dWRMP24 in a number of ways. In terms of the development of individual options, a high-level RAG screening[105] was undertaken as a precursor to the full SEA assessments. The HLS involved an initial assessment of the unconstrained list of options to identify high-level environmental risks. This supported decision-making on the options, with BNW4 removed due to the high-level screening results. Options that had themes flagged as high risk were reviewed with SWW during a workshop in April 2022, and were retained at the time as options for further assessment.

10.6.2 Following this, the SEA process directly shaped the option development as environmental constraints and identified risks were used to inform option detail. This included amending infrastructure locations such as pipeline routes and intake locations, thus avoiding sensitive areas and reducing the need for mitigation. This was undertaken by the SEA team and SWW.

10.6.3 Additionally, the findings of the SEA and other technical environmental assessments (i.e. HRA, WFD, INNS, BNG/NCA) were fed back to SWW for further consideration and option refinement. Collaborative meetings with option engineering teams have been held through the process, with SWW engineering teams building on the SEA findings in terms of option locations, risks and opportunities. The revised options then undergo re-assessment for the SEA to ensure the findings remain relevant.

10.6.4 During Summer 2023, workshops were held with Environment Agency and Natural England to run through the approach to SEA, HRA, BNG, NCA, and the WFD assessment methodology and dWRMP24 consultation comments. Further Environment Agency engagement sessions were held to discuss each WRZ, with SWW presenting the options and providing clarification on how they will be implemented including: benefits, delivery programme and justification behind SWW approach. As part of these workshop environmental considerations were also discussed with key environmental risks identified for review and consideration within the plan development.

10.6.5 For the selection of the BVP, SWW undertook modelling based on data for the individual options. The BVP is the preferred plan for the draft WRMP24. The best value approach is split into three dimensions: environment, resilience, and society. It aims to develop a plan which provides a sufficient and reliable water supply for the region, at the best value for revenue invested. This means that the BVP considers additional factors other than the lowest cost method to avoid or minimise water deficit.

10.6.6 The findings of the SEA and technical environmental assessments were incorporated into the SWW model optimisation under the environment element (as per the methodology set out in **Section 8.7**). Through ongoing communication with SWW and KPMG the key environmental risks were identified as part of the HLS result and SEA modelling, thus enabling environmental factors to be considered and feed into the model to inform plan selection. This included findings from the following assessments:

- SEA, which includes consideration of the HRA, WFD and INNS assessments (positive and negative short-term and long-term effects);
- BNG units & NCA (environmental – includes financial metrics (carbon storage, natural hazard management, air pollutant removal and food production) and also qualitative scores (water regulation and water purification));
- NCA (social – recreation/amenity financial metric); and
- Carbon (embodied and operational).

[105] Mott MacDonald (2022). *South West Water WRMP24 Strategic Environmental Assessment (SEA) High-Level Screening Summary Report (100107117-MMD-RP-SEA-004-B).*

10.6.7 At this stage, SWW's modelling has undergone a number of reviews and iterations. It is important to note that the BVP contains options which were selected due to stakeholder opinions and preferences. The BVP was reviewed and updated during Summer 2023.

10.6.8 The modelling approach has been updated as part of the updated dWRMP development. The available SEA and NCA data at the time of modelling, has been used to inform the optimisation results with positive and negative SEA impacts being considered alongside the monetised impacts. As part of the models development positive and negative SEA modelling values have been accounted for separately for each option, for both short and long term. This is expected to better reflect the SEA findings by separating construction and operational effects and avoiding cancelling out of positive and negative effects.

Removed Options

10.6.9 Following the high-level screening of significant environmental constraints and ongoing option development by SWW, some options originally identified by SWW were not progressed. The following options initially underwent assessment but were determined as not suitable and have therefore not been considered further within this Environmental Report:

- **BNW2 – Stanbridge, part of revised use of Stour, smarter conjunctive use of the Stour sources:** Moving the licence will not increase the water available.
- **BNW4 – Woodgreen, New borehole development:** Groundwater modelling results indicated no potential for additional abstraction in the main chalk aquifer to protect the environment. High level environmental screening also highlighted several issues.
- **BNW5 – Hydrogeological survey of whole area:** Groundwater modelling results indicated no potential for additional abstraction in the main chalk aquifer to protect the environment.
- **BNW9 – Woodgreen, hydraulic restriction:** Issues are being resolved within the current AMP.
- **BNW10 – Christchurch WWTW IPR 1 Transfer to River Avon:** This is due to environmental reasons as the option identified significant uncertainty from potential discharge into the lower River Avon to augment flows being deemed unacceptable due to the river's designation.
- **BNW12 - Holdenhurst WWTW IPR 1, additional treatment at Holdenhurst before pumped transfer to the River Avon:** Discharge into lower River Avon to augment flows is not acceptable in a designated river. Natural England have indicated this scheme would not be acceptable.
- **BNW13 – Holdenhurst WWTW IPR 2 Transfer to Longham Lakes:** Has been removed due to significant uncertainty around the option, due to no feasible pipe routes being identified between Holdenhurst and Longham.
- **BNW15 – New reservoir in the upper Dorset Stour:** Following site visits and detailed review this site and other sites have been deemed technically infeasible for potential development. Wessex Water in collaboration with SWW have removed this option from their WRMP24 plan. Adaptive planning work will be included in next 5 years.
- **BNW16 - Christchurch and Holdenhurst WWTW:** Has been removed due to significant uncertainty. Furthermore, this option is considered to be environmentally unacceptable.
- **COL1 - Restormel annual licence increase:** Recent discussions with the Environment Agency over environmental destination and risk of deterioration highlighted their concerns over additional abstraction from the Fowey. Included in WINEP24 so studies proposed in AMP8.
- **COL8 - Colliford - Pit Option: On site treatment and transfer to Service Reservoir:** There is no likelihood of access to water from this pit in the short to medium term due to ownership reasons.

- **COL10a - Pit, Treat onsite:** Site not available for use due to ownership reasons.
- **COL10b - Pit, Transfer and treat at WTW:** Site not available for use due to ownership reasons.
- **COL13 - Drift network improvements:** Demand analysis indicates likely increases in the Drift supply area which would remove any surplus available for transfer.
- **COL14 – Restormel, Improve site water efficiency and reduce site losses:** Current works on identified issues will be completed 2022. Other improvements have been included in the scoping and costing for option COL15.
- **COL16 - College WTW improvements:** Capital scheme to deliver quality improvements at the site has recently been completed. Extended period of re-commissioning is required to see if there is any scope for additional resource availability. Potential to review for WRMP29.
- **COL17 - Stithians WTW, reduce WTW minimum capacity:** Further investigations revealed that the minimum WTW capacity is lower than understood. There is no longer potential to gain resource through this approach at this site.
- **ROA1 - Dart intake licence increase:** Recent discussions with the Environment Agency over environmental destination and risk of deterioration highlighted their concerns over additional abstraction from the Dart. Included in WINEP24 so studies proposed in AMP8.
- **ROA5 - Purchase quarry or lease the water:** Site not available for use due to ownership reasons.
- **ROA9 - Upper Tamar WTW, reduce WTW minimum capacity:** Further investigations revealed that the minimum WTW capacity is lower than understood. There is no longer potential to gain resource through this approach at this site.
- **WIM3 - Hook springs annual abstraction increase:** Due to concerns over the impact on the River Kit the Environment Agency have confirmed that Hook Springs should be included in WINEP24.

10.6.10 SWW have undertaken significant design, and in some cases construction, of a number of schemes. It is anticipated that these schemes will be delivered in AMP7 and will not be included within the updated dWRMP24. SWW will be regularly monitoring the design and construction progress of these schemes and will be progressing through the SWW capital project assurance process.

The following seven options have been removed from the WRMP and included under AMP7:

- COL11 – Hawks Tor Pit,
- COL12 – Stannon daily abstraction increase,
- COL18 – Porth Rialton – Coswarth WTW,
- ROA8 – Tottiford WTW Reduction of treatment capacity,
- ROA10 – Avon WTW Reduction of treatment capacity,
- ROA11 – Meldon WTW Reduction of treatment capacity,
- ROA15 – Gatherly Phase 1,
- ROA25 – Challacombe, and
- COL7 – Blackpool Pit to Restormel WTW.

11 Mitigation and Monitoring

11.1 Mitigation and Enhancement Measures

11.1.1 Mitigation measures and enhancement opportunities are identified in the individual option assessments. At this stage, options are still at an early stage of development and further studies and assessments and site specific mitigation will be detailed at a later project stage.

11.1.2 HRA AA, WFD Level 2 Assessments and INNS Assessments were required for a number of the selected options and specific mitigation was developed as part of this process and included in the detailed SEA options assessment matrices.

11.1.3 The mitigation hierarchy should be followed as far as possible to reduce adverse environmental effects. As discussed with relevant stakeholders during Summer 2023, a detailed monitoring and mitigation plan is still under development and will be reflected in the December 2023 update.

11.1.4 A summary of the high-level plan-wide measures is provided below:

Biodiversity, flora and fauna

- Where potential major negative impacts on designated and non-designated ecological sites could be expected pre-mitigation, CIRIA guidance would be followed to help alleviate impact pathways during construction, e.g. through planning the construction programme to avoid breeding birds period (March to August inclusive). If construction does occur, additional data could be required to determine presence of qualifying features.
- Best practice construction and mitigation methods would be implemented to minimise disturbance effects (e.g. dust suppression and pollution control measures).
- Measures from the CEMP would be followed to ensure compliance and best practice.
- Trenchless techniques would be implemented where feasible to reduce the level of disturbance to habitats within close vicinity of the site.
- Habitat would be reinstated on completion of developments, or if unavoidable impacts, compensatory habitat to be considered to replace damaged or lost habitat in line with BNG requirements.
- Where possible, development on priority habitat would be avoided to minimise effects.
- For various options, ecology surveys would be required at future design stages to determine effects and mitigation required.
- Best practice and consultation of the INNS risk assessment would help minimise spread of INNS. Construction sites to follow best practice biosecurity measures.
- Consultation with statutory bodies would be undertaken to ensure impacts to protected species and habitats are avoided or mitigated appropriately according to statutory requirements.

Water

- Best practice construction methods are assumed to be implemented to minimise water deterioration (e.g., dust suppression, pollution control measures).
- Measures from the CEMP would be followed to ensure best practice.
- For certain options, groundwater levels and quality would be carefully monitored throughout operation and the monitoring criteria should be agreed with relevant authorities to minimise the long-term effects on water quality and water resources.

- The quality of seawater at certain options (e.g. Option ISMY3) would be carefully monitored throughout operation to minimise long term effects on water quality and water resources.
- To reduce impacts on GPZs, option location would be considered as well as pipeline alignment and trenchless techniques where applicable.
- For certain options, risk assessments would be undertaken for excavation works and dewatering to ensure no adverse effects on watercourses. Measures identified within the CEMP to manage surface run off would be implemented to reduce risk.

Soil

- Best practice mitigation measures would be implemented during the construction phase (stripping, stockpiling, the conservation of topsoil and subsoil etc).
- Construction on greenfield land would be avoided where possible, to reduce the impacts on undisturbed soils.
- Reinstatement of land excavated for the pipeline to minimise land take and disturbance.
- During operation, careful monitoring of abstraction via the borehole would be implemented to avoid any impacts on soil subsidence.

Air

- Best practice mitigation measures are to be implemented to mitigate potential air quality effects arising from construction works and increased vehicular movement. These mitigation measures would also include dust suppression and pollution control measures.

Climatic factors

- Investigate the use of substitute materials with lower embodied carbon and use of renewables to power new facilities.
- In general, decarbonisation of the national grid is likely to help reduce future carbon emissions.
- For certain options, the water levels should be carefully monitored during operation to ensure they remain at an appropriate level. Best practice measures should be applied to prevent over abstraction and negative impacts on the environment.

Historic Environment

- The location of boreholes, associated infrastructure, and pipelines (where applicable) should be carefully considered to minimise the effects on the historic environment.
- If the historic environment is likely to be detrimentally affected, re-routing pipelines should be considered. If this is not possible then careful consideration and reinstatement to its original condition should take place, with no detrimental effect on the character or area.
- Regarding certain options, additional baseline collection and assessment should be undertaken to determine any additional potential effects on water-dependant heritage assets and water sensitive historic environments to be identified.
- Where specific historic assets could be directly impacted by development, options should aim to minimise direct impacts and impacts on their setting where possible.
- Consultation with statutory bodies would be undertaken to ensure impacts to heritage assets are avoided or mitigated appropriately according to statutory requirements, policies and guidance.
- A Heritage Impact Assessment may be required for certain proposals, in line with Historic England best practice guidance.

Landscape

- Best practice construction methods to be implemented to minimise any effects on landscape and visual amenity (measures from the CEMP should be followed).

- Where possible, locate new infrastructure close to existing above ground-built assets, as this could lower the long-term impacts on visual amenity.

Population and human health

- Best practice construction methods to be implemented to minimise the impacts on the health and well-being of the local community.
- Where applicable, route realignment to be amended or trenchless techniques to be used to avoid direct impacts on property and community assets.
- It is recommended that standards from the Considerate Constructors Scheme (CCS) are followed to ensure best practice.

Material assets

- Where possible, seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact.
- Best practice construction and mitigation measures to be implemented, including a Traffic Management Plan (TMP) to minimise disturbance during construction.
- Investigate the use of renewables to power the construction machinery and new facilities during operation.

11.2 Monitoring Proposals

11.2.1 Monitoring will be carried out by SWW as part of their WRMP processes. A detailed monitoring plan is currently under development, which will aim to target options that are anticipated to be developed before 2040. At this stage, construction timelines have not been provided, and as such it is intended that the monitoring plan will be included within the December 2023 update of this report.

11.2.2 Monitoring helps ensure that the identified SEA objectives are being achieved and allows for early identification of unforeseen adverse effects and thus appropriate remedial action can be taken. Monitoring will be an important requirement to measure performance and ensure the WRMP24 is being successfully implemented. The DCLG guidance[106] states that it is inappropriate to monitor everything and monitoring proposals should be focused on the following areas:

- Identify potential breaches of international, national, or local legislation, recognised guidelines, or standards.
- Significant environmental effects which may give rise to irreversible damage, with a view to identifying trends before such damage occurs.
- Where there was any uncertainty in the SEA and where monitoring would enable prevention or mitigation measures to be taken.

11.2.3 The following monitoring measures are proposed for the WRMP24 SEA, as set out in **Table 11.1** below.

Table 11.1: SEA Monitoring Measures

SEA Objective	Monitoring Measure
Biodiversity, flora and fauna	% of habitat creation or existing habitat enhancement
	Area (hectares) and number of statutory and non-statutory ecological sites that will be harmed or lost to WRMP24 options
	Area of both blue and green infrastructure created

[106] DCLG (2005) A Practical Guide to the Strategic Environmental Assessment Directive. Available at: https://www.gov.uk/government/publications/strategic-environmental-assessment-directive-guidance. Date accessed: 26/09/22

SEA Objective	Monitoring Measure
Water	Achievements against WFD objectives
	Ecological and chemical status of water bodies
	River flow levels
	Lake and reservoir levels
	Groundwater levels
	Number of supply disruptions per annum
Soils	Area of agricultural land (by grade) lost due to the need for water resource options/infrastructure
	Number of geological sites affected
Air	SWW vehicle distance travelled (km)
Climatic Factors	Reduction of GHG emissions per Ml/d
	Energy use from new operations and change in energy use per Ml/d
	% energy supplied by renewable sources
	Reduction of operational and capital carbon emissions
Historic Environment	Number of heritage assets adversely affected by WRMP24 options
	Number of heritage assets enhanced by WRMP24 options
Landscape	Number of landscapes, townscapes and seascapes adversely affected by WRMP24 options
	Number of landscapes, townscapes and seascapes enhanced by WRMP24 options
Population and Human Health	Number of, and attendance levels at, public engagement events
	Number of apprenticeships
	Km of new footpath/cycleways
	Number of tourism assets created or enhanced
	Number, type, and area of community assets created
Material Assets	% of A-Rated, recycled, reused material used in infrastructure options
	Number of options that utilise existing infrastructure
	Volume of waste generated
	Waste disposal method by %

12 Consultation and Next Steps

12.1 SEA Environmental Report Consultation

12.1.1 The draft SEA Environmental Report was issued for a three-month consultation period from February to May 2023 to the three statutory bodies: the Environment Agency, Natural England and Historic England, as well as being made available to wider stakeholders.

12.1.2 Consultation responses have been reviewed as per the SoR August 2023 and where feasible have been taken into account. The An updated draft SEA Environmental Report has been amended as necessary to reflect any changes as a result of consultation responses. This report has been submitted for an 8-week consultation period from October to November 2023 as part of the updated dWRMP24 to the aforementioned statutory bodies.

12.1.3 SWW welcomes your views on the SEA Environmental Report on the following key questions:

- Do you have any comments on the effects identified in the SEA?
- Do you have any comments on the proposed mitigation measures?
- Do you have any comments on the assessment of the preferred plan (BVP)?

12.1.4 Following the Environmental Report re-consultation period, all new or outstanding consultation responses will be carefully reviewed and tabulated, and taken into account as far as possible. Any significant alterations to the SWW updated dWRMP24 as a result of the consultation will be assessed in terms of their environmental implications and influence on the revision of the WRMP24.

12.2 Next steps

12.2.1 Following the revised consultation period, an update to the updated draft SEA Environmental Report will be undertaken to address any further consultation comments and to incorporate outstanding environmental assessments and cumulative programme assessments for the preferred and alternative plans.

12.2.2 A consultation log of responses will be produced and will record the comments received from the Statutory Consultees and other stakeholders as part of the February to May 2023 and October to November consultation periods presenting the action taken to address them. This will be presented as part of the SoR in December 2023. As noted above in Section 12.1, the Environmental Report will be updated to reflect any further consultation comments and the consultation log will be appended to the SWW Final Environmental Report, which will accompany SWW Final WRMP24.

12.2.3 As the WRMP24 is further developed the SEA will be updated to reflect any new options, updates to the selected options and potential cumulative effects of the BVP and any other alternative plans provided by SWW. The Environmental Report will be updated to take into account any changes in the updated dWRMP24 as it develops into the final BVP as well as incorporation of the alternative plans. As part of the WRMP24 development all newly identified options will undergo full environmental assessments including SEA, HRA ToLS and AA, WFD Level 1 and Level 2, NCA/BNG and INNS Level 1 Screening and Risk Assessment where required. The results of these assessments will be shared with SWW to inform the WRMP.

12.2.4 Following adoption of the SWW WRMP24, a Post-Adoption Statement will be produced which outlines how the SEA process has influenced the development of the WRMP, how consultation comments were taken into consideration and how the WRMP24 will be monitored. This

summary will provide enough information to make it clear how the SWW WRMP24 was influenced as a result of the SEA process and consultation.

12.2.5 Stage E 'Monitoring implementation of the plan' of the SEA process will be carried out by SWW when the WRMP24 is implemented. Monitoring of the WRMP24 will be incorporated with SWW's annual monitoring processes to help ensure positive sustainability outcomes for the WRMP24.

Appendices

Annex 1

A. SEA Process Task

B. Review of Relevant Policies and Programmes

C. Baseline Information

D. Baseline Maps

E. Assessment Scoring Criteria

F. SEA Scoping Report Consultation Log

G. SEA QA Checklist

Annex 2

H. Informal Habitats Regulations Assessment (HRA)

Annex 3

I. Water Framework Directive (WFD) Assessment

Annex 4

J. Biodiversity Net Gain (BNG) & Natural Capital Approach (NCA) Assessments

Annex 5

K. Invasive Non-Native Species (INNS) Assessment

Annex 6

L. Bournemouth WRZ SEA Assessment

M. Colliford WRZ SEA Assessment

N. Roadford WRZ SEA Assessment

O. Wimbleball WRZ SEA Assessment

P. Isles of Scilly WRZ SEA Assessment

Q. Demand Options SEA Assessment