

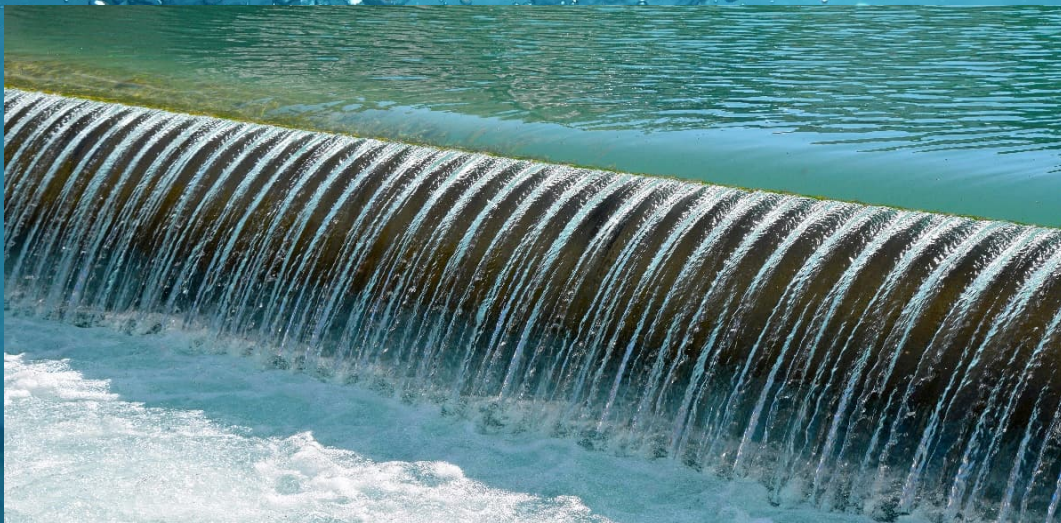


Wessex Water

Revised Draft Water Resources Management Plan 2024 Strategic Environmental Assessment

Environmental Report

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Report for

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Doc Ref. 80726_SEA_REVSED

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This document has been produced in full compliance with our management systems, which have been certified to ISO 9001, ISO 14001 and ISO 45001 by Lloyd's Register.

Document revisions

No.	Details	Date
1	Draft	September 2022
2	Revised	September 2022
3	RevisedV2	November 2022
4	Final Revised	August 2023

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Non-Technical Summary

Introduction

Wessex Water Services Limited (Wessex Water) is preparing its next Water Resources Management Plan (WRMP24). The WRMP sets out how the balance between water supply and demand, and security of supply, will be maintained over a minimum of 25 years in a way that is economically, socially and environmentally sustainable. WRMPs are reviewed on a rolling five-year basis, the most recent being published in 2019.

WRMPs must comply with international, UK and national legislation pertaining to the environment, as well as associated guidance on the development of WRMPs¹. This includes The Environmental Assessment of Plans and Programmes Regulations 2004 (the 'Strategic Environmental Assessment (SEA) Regulations'). The SEA Regulations require an assessment of the likely significant environmental effects of the plans and identifies ways in which adverse effects can be avoided, minimised or mitigated and how any positive effects can be enhanced. In doing so, the SEA will be used to inform the development and selection of the water resource management options that will comprise the WRMP24.

This Non-Technical Summary (NTS) provides an overview of the Environmental Report produced as part of the SEA of the Revised Draft WRMP24. The Environmental Report represents the third output of the SEA of the WRMP24 following a Scoping Report which was issued to SEA consultation bodies in April 2022 and the Environmental Report completed to accompany the consultation on the Draft WRMP24 in November 2022

The Environmental Report presents the findings of the SEA and is being issued alongside the Revised Draft WRMP24. The following sections of this NTS:

- provide an overview of the WCWR Regional Plan and the Water Resource Management Plans (WRMPs);
- describe the SEA process together with how it is to be applied to the Revised Draft WRMP24;
- presents the key issues relevant to the SEA of the Revised Draft WRMP24
- summarises the approach to undertaking the assessment of the Revised Draft WRMP24;
- summarises the findings of the SEA of the Revised Draft WRMP24 and any reasonable alternatives;
- outlines the proposed mitigation and enhancement measures identified;
- summarises the conclusions; and
- set out the next steps in the SEA of the Revised Draft WRMP24.

¹ EA, Ofwat and NRW (2023) *Water Resource Planning Guidance (WRPG)* [online]. Available at: [Water resources planning guideline - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/115444/water_resource_planning_guideline_-_gov_uk.pdf) [Accessed August 2023].

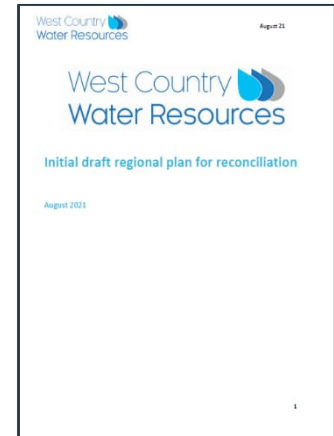
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Water Resource Planning

Consistent with the National Framework², water resources management planning is being undertaken regionally and by all water companies in England and Wales in order to ensure reliable, resilient water supplies over the long-term planning horizon.

Wessex Water is developing its WRMP24 within the context of the West Country Water Resources (WCWR) Regional Plan³ for the management of water resources in the south-west of England. It includes all of the operational areas of Bristol Water, Bournemouth Water, South West Water and Wessex Water. WCWR produced its Draft Regional Plan⁴ in January 2023.

The Draft Regional Plan indicates that whilst large scale demand reductions can be reliably achieved, due to the effects of population growth, climate change, increased drought resilience and the need for sustainable reduction in abstractions, the region is likely to face a shortfall for water users ranging from 130MI/d to 326MI/d under a number of different scenarios considered. The Draft Regional Plan outlines the potential strategic⁵ supply-side options that are being investigated in the West Country in parallel with demand reduction options. Supply-side options include new reservoirs, enhancements to existing reservoirs and effluent recycling.



The Draft Regional Plan identifies Wessex Water as one of two WRZs where the supply demand balance is particularly constrained under critical dry period conditions. It identifies potential Strategic Resource Options (SROs) to address this deficit, including the Cheddar Two Reservoir, the Mendip Quarries Reservoir and the Poole effluent recycling and transfer. The plan suggests that for Wessex Water, in the long-term the use of groundwater as the primary source of water will reduce (indicatively from over 70% to approximately 40%) as new alternative sources of water come online to replace reduced groundwater abstraction.

Water Resource Management Plans

Each water company's WRMP sets out how the balance between water supply and demand, and security of supply, will be maintained over a minimum of 25 years in a way that is economically, socially and environmentally sustainable. This will include public water supply (PWS) and non-public water supply (non-PWS).

² Environment Agency (2020) Meeting our future water needs: a national framework for water resources. Available from: <https://www.gov.uk/government/publications/meeting-our-future-water-needs-a-national-framework-for-water-resources>

³ EA (2020) *Water Resources National Framework*: Appendix 2: Regional planning

⁴ WCWR (2022) *Draft Plan for Consultation and Comment* (January 2023). Available online: <https://www.wcwr.org/siteassets/document-repository/reports/draft-west-country-water-resources-plan-31jan2023.pdf>

⁵ Strategic regional solutions are options that generate new water resources and enable the new water resource to be used regionally. They involve more than one water company and will provide a significant yield (typically more than 10 MI/d).

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The plan process initially reviews as many potential solutions as possible (the 'unconstrained list' of options) to identify 'feasible' options for each Water Resource Zone⁶ (WRZ) which will contribute to meeting the supply demand deficit across the operational area. Types of water resource management options considered to meet any forecast deficit in a WRZ can include:

- Customer options which include measures to manage the demand for water such as smart meters, rainwater harvesting, greywater recycling or household visits to install water efficiency measures;
- Distribution options which include measures to optimise the efficiency of water networks, reduce leakage and minimise any unscheduled resource losses;
- Production options include measures to increase the efficiency and effectiveness of treatment processes;
- Resource management options which include measures to increase supply such as greater peak output at existing groundwater sources, reservoir or surface water supply and which will include SROs; this also includes catchment management options, for example nature-based solutions;
- Non-PWS options which include any options which increase water resource availability or reduce the need for abstraction outside of that needed for public water supplies.

In contrast to its current plan (WRMP19) and aligned with the WCWR forecasts, Wessex Water is predicting a potential significant deficit later in the planning horizon that will not be resolved through demand-management alone. It has therefore identified a range of supply-side options that may be deployed to resolve the deficit, including:

- enhancements to network operations and existing transfers;
- new reservoir storage schemes and increasing storage at existing sites;
- new transfers;
- effluent re-use schemes;
- modifications to existing source abstraction.

Wessex Water has screened its list of unconstrained options and has identified 86 feasible options, comprised supply side (resource management) options and 'demand-side' (customer, distribution and production) options.

Water Resource Planning Guidance^{7,8} now requires the development of best value plans (building on the previous concepts of least cost plans), which necessitates the application of novel assessment and decision-making techniques. Wessex Water has developed a number of different

⁶ Section 4.4. of the WRPG defines a water resource zone as "an area within which the sources of water and distribution of water to meet demand, is largely self-contained (with the exception of agreed bulk transfers)."

⁷ UK Government (2022) *Water Resource Planning Guideline* [online]. July 2022. Available at: <https://www.gov.uk/government/publications/water-resources-planning-guideline/water-resources-planning-guideline>. [Accessed 5th August 2022].

⁸ Environment Agency (2022) *Water resources planning guideline supplementary guidance – Environment and society in decision-making* (External guidance: Version 2, Dated: 03 March 2022)

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plan options and tested these under different future growth and demand scenarios to address the future predicted supply deficits both at a companywide level and also at a sub-zone level. A decision-making tool has been applied to choose the optimum combination of supply and demand options to meet any deficits across the planning horizon.

Wessex Water's Revised Draft WRMP24 contains 11 preferred options which are a best value combination of supply and demand options. In order to ensure supply resilience in 2035 and beyond it will be necessary to begin implementing enhanced demand reduction strategies and supply scheme investigations starting in 2025. This will improve supply resilience in droughts, reducing the risk of supply interruptions or restrictions imposed on customers, and will help to ensure river flows and the wider environment are protected, most notably in the Hampshire Avon catchment. In combination, the selected options included in the preferred plan will ensure Wessex Water meet:

- the statutory water demand target to reduce the demand for water from public water supply per head of population in England by 20% by 2037/38 from the 2019/20 baseline;
- the long-term target to reduce average per capita water consumption to 110 l/p/d by 2050;
- the long-term target to reduce leakage by 50% by 2050; and
- the long-term target to reduce non-household water use by 15% by 2050.

What is Strategic Environmental Assessment (SEA)?

SEA became a statutory requirement following the adoption⁹ of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment. In England, this was transposed into legislation on 20th July 2004 as Statutory Instrument 2004 No.1633 - The Environmental Assessment of Plans and Programmes Regulations 2004.

SEA is a systematic decision support process, aiming to ensure that the likely significant environmental effects of plans and programmes are identified, described to avoid, manage or mitigate any significant adverse effects and to enhance any beneficial effects. In this context, the purpose of SEA is to encourage relevant plan authors to integrate environmental considerations into the development of any plan or programme. Generally, a SEA is therefore conducted before an Environmental Impact Assessment (EIA) is undertaken.

In this context, the purpose of the SEA of the WRMP24 has been to:

- identify the potentially significant environmental effects of the WRMP24 in terms of the measures being considered by WWSL for water resource management;
- help identify appropriate measures to avoid, reduce or manage adverse effects and to enhance beneficial effects associated with the implementation of the WRMP24 wherever possible;

⁹ EU law has ceased to apply in the UK under the terms of the Withdrawal Agreement and EU Treaties. The European Union (Withdrawal) Act 2018 (EUWA) has established a new body of domestic law known as retained EU law. Any references to EU Directives in this Technical Note should be read as references to the domestic legislation that implemented the Directive (including that domestic legislation as it is revised or replaced from time to time).

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- give the statutory SEA bodies, stakeholders and the wider public the ability to see and comment upon the effects that the Draft WRMP24 may have on them, their communities and their interests, and encourage them to make responses and suggest improvements for inclusion in the Revised Draft WRMP24; and
- inform WWSL's selection of measures to be taken forward into the final WRMP24.

SEA comprises five key stages:

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

Stage A of the SEA of the WRMP24 led to the production of the SEA Scoping Report. The scoping stage itself comprised five tasks that are listed below:

- i. Review of other relevant policies, plans, programmes and strategies (hereafter referred to as 'plans and programmes').
- ii. Collation and analysis of baseline information.
- iii. Identification of key sustainability issues.
- iv. Development of an assessment framework.
- v. Consultation on the scope of the SEA (this Scoping Report).

Information collected and analysed (as part of tasks i and ii) covers Wessex Water's operational area. The Scoping Report set out the proposed framework for assessing the likely significant environmental effects of the WRMP24. It was issued for scoping consultation for 5 weeks from 4th April to 10th May 2022. The representations received and how they have been taken into account are presented in Appendix B.

Following scoping consultation and amendment as appropriate, the framework has been used to assess the likely significant environmental effects (including cumulative effects) of the water resource options contained in the Draft (and Revised Draft) WRMP24 and any reasonable alternatives (Stage B).

These assessments are presented in an Environmental Report (in a form to meet the requirements of Schedule 2 of the SEA Regulations) which has been completed to accompany the Draft WRMP24 (Stage C).

The Draft WRMP24 and accompanying documents including the Environmental Report were submitted to the Secretary of State for Environment, Food and Rural Affairs, for a request for publication. Wessex Water published the documents for consultation from 28th November 2022 to 20th February 2023 (Stage D). Following consultation Wessex Water has prepared a Statement of Response to the representations received. It has also completed further work reflecting revisions to the drought resilience and demand management expectations which has led to amendments to

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the Draft WRMP24. A Revised Draft WRMP24 has been completed and given the changes has also been subject to further environmental assessment. The findings are presented in this Environmental Report. The Revised Draft WRMP24 and accompanying technical documents including the Environmental Report will be sent to the Government. Following direction from the Government, the final WRMP24 will be published and implemented accordingly. In conjunction with publishing the final WRMP24, a Post Adoption Statement will also be issued (to meet the requirements of SEA regulation 16 (4)). This will set out the results of the consultation and SEA processes and the extent to which the findings of the SEA have been accommodated in the final plan.

The SEA requires monitoring of any resulting environmental effects of the WRMP24 (Stage E).

Section 1.4 of the Environment Report describes in further detail the requirement for SEA of the WRMP24 and the SEA process including its relationship with the preparation of the Wessex Water Draft and Revised Draft WRMP24.

What are the Key Issues for the SEA of the WRMP?

As part of the SEA process, a review has been undertaken to identify the key economic, social and environmental issues which are relevant to the assessment of the WRMP24. These issues have been identified from a variety of sources, including a review of baseline data and other relevant plans and programmes. A summary of the issues identified as being most relevant to the assessment of the Revised Draft WRMP24 are shown in Table NTS.1.

Table NTS.1 Key Issues Relevant to the Revised Draft WRMP24

Topic Area	Key Environmental, Social and Economic Issues Relevant to the WRMP24
Biodiversity	<ul style="list-style-type: none"> • The need to protect and enhance sites designated for nature conservation. • The need to continue to increase and improve the condition of priority habitats and habitats of priority species and restore populations of these species and other specially protected species. • The need to avoid activities likely to cause irreversible damage to natural heritage. • The need to take opportunities to improve connectivity between fragmented habitats to create functioning habitat corridors. • The need to control the spread of Invasive Non-Native Species (INNS). • The need to recognise the importance of allowing wildlife and sensitive habitats to adapt to climate change.
Geology Land use and Soils	<ul style="list-style-type: none"> • The need to influence how land is managed, promoting sustainable patterns of land use including the use of previously developed land. • The need to protect and avoid damage to geodiversity and conserve and enhance sites designated for geological interest. • The need to manage impacts on soil resources, including control of pollution and remediation of contaminated land, and minimise the loss of the best and most versatile agricultural land.
Water	<ul style="list-style-type: none"> • The need to maintain and further improve the quality of the rivers, estuarine and coastal waters taking into account WFD objectives. • The need to maintain the quantity and quality of groundwater resources taking into account WFD objectives.

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Topic Area	Key Environmental, Social and Economic Issues Relevant to the WRMP24
	<ul style="list-style-type: none"> • The need to ensure sustainable and appropriate abstraction levels and water flow/levels in waters across the full range of regimes from low to high conditions and meet society's needs for a resilient water supply. • The need to maintain and enhance the resilience of the water environment to the effects of climate change. • The need to reduce and manage flood risk.
Air Quality	<ul style="list-style-type: none"> • The need to minimise emissions of pollutant gases and particulates to comply with air quality standards. • The need to enhance air quality.
Climate Change	<ul style="list-style-type: none"> • The need to reduce greenhouse gas emissions arising from implementation of the WRMP24. • The need to take into account, and where possible adapt to, the current and anticipated future effects and risks of climate change. • The need to increase environmental resilience to the effects of climate change.
Human Environment	<ul style="list-style-type: none"> • The need to ensure that water supplies remain affordable, in particular for deprived or vulnerable communities. • The need to ensure that the WRMP24 does not have an adverse economic impact and benefits are maximised. • The need to ensure continuing safe, reliable and resilient provision of water and sewerage services to maintain health and wellbeing of the population. • The need to ensure water quantity and quality is maintained for other users including tourists, recreational users and other users such as farmers. • The need to accommodate an increase in population, households, dwellings and development associated with other uses that might impact on demand for water whilst ensuring the continued provision of essential services including water supply. • The need to ensure a balance between different aspects of the built and natural environment that will help to provide opportunities for local residents and tourists for access to green infrastructure and the natural and historic environment, as well as protecting and enhancing recreational resources. • The need to ensure that sites of nature conservation importance, heritage assets, water resources, important landscapes and public rights of way contribute to recreation and tourism opportunities and subsequently health and wellbeing and the economy.
Material Assets and Resource Use	<ul style="list-style-type: none"> • The need to minimise the demand for water resources through water efficiency measures (including metering) and the reduction of leakage in the region. • The need to reduce energy consumption. • The need to ensure the sustainable and efficient use of resources such as construction materials. • The need to minimise waste arisings, promote reuse, recovery and recycling and minimise the impact of waste on the environment and communities.
Cultural Heritage	<ul style="list-style-type: none"> • The need to conserve and enhance the historic significance of buildings, monuments, features, sites, places, areas of archaeological and cultural heritage interest, particularly those which are sensitive to the water environment. • The need to conserve and enhance World Heritage Sites within the Wessex Water area. • The need to avoid damage to important wetland areas with potential for paleoenvironmental deposits, for example within the Avon Valley National Character Areas.
Landscape	<ul style="list-style-type: none"> • The need to conserve and enhance landscape and seascape character, taking into account the effects of climate change and recommendations for managing change in the profile of relevant NCAs.

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Topic Area	Key Environmental, Social and Economic Issues Relevant to the WRMP24
	<ul style="list-style-type: none"> <li data-bbox="448 309 1390 371">• The need to ensure the special qualities of designated landscapes including Exmoor National Park and AONBs in the Wessex Water area are protected. <li data-bbox="448 371 1378 434">• The need to minimise any adverse impacts upon landscape and seascape that may result from measures in the WRMP24.

The key issues listed in Table NTS.1 above have informed the proposed framework that will be used to assess the effects of the Revised Draft WRMP24.

Section 2 of the Environmental Report summarises the review of plans and programmes relevant to the Revised Draft WRMP24 and SEA that is contained at Appendix B.

Section 3 presents an overview of the baseline analysis of social, economic and environmental characteristics, and identification of the key issues and their relevance to the assessment.

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How have the Effects of the Revised Draft WRMP and any Reasonable Alternatives been Assessed?

A draft assessment framework was developed to assess the economic, social and environmental effects of the WRMP24, and revised to reflect scoping consultation comments. This framework sets out a number of assessment objectives relating to the key issues identified in Table NTS.1. For each objective, guide questions are also provided. The assessment framework that has been used to assess the Revised Draft WRMP24 is shown in Table NTS.2.

Table NTS.2 Proposed Assessment Framework for the Revised Draft WRMP24

Topic	Proposed Objective
Biodiversity, Flora and Fauna	1. To protect, restore and enhance biodiversity, including designated sites of nature conservation interest, protected habitats and species, enhance ecosystem services and resilience and deliver a net biodiversity gain.
Soils, Land Use and Geology	2. To protect and enhance soil quantity, quality and functionality and geodiversity and contribute to the sustainable use of land.
Water – Quantity and Quality	3. To maintain, protect and enhance surface and ground water resource levels, flows and quality
Water – Flood Risk	4. To reduce or manage flood risk.
Air	5. To minimise emissions of pollutant gases and particulates and enhance air quality.
Climatic Factors	6. To reduce embodied and operational greenhouse gas emissions.
	7. To adapt and improve resilience to the threats of climate change.
Population	8. To promote a sustainable economy and maintain and enhance the economic and social well-being of local communities.
Human Health	9. To protect and enhance human health and well-being.
Material Assets - Water Resources	10. To promote and enhance the sustainable and efficient use of resilient water resources.
Material Assets – Waste and Resource Use	11. To minimise waste, promote resource efficiency and move towards a circular economy.
Cultural Heritage	12. To conserve and enhance the historic environment including the significance of heritage assets and their settings and archaeologically important sites.
Landscape	13. To conserve, protect and enhance landscape, seascape and townscape character and visual amenity.

The effects of the Revised Draft WRMP24 have been assessed in a staged process, complementary to the development of the plans, and reflecting the decision-making requirements, as follows:

- Revised feasible option assessment: a high-level assessment of all revised feasible options (including resource management and demand management options) against

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the 13 SEA assessment objectives detailed in Table NTS.2 with findings used to inform the plan decision making.

- Revised Preferred option assessment: for those options selected, a more detailed assessment has been undertaken of the preferred plan options against the 13 SEA assessment objectives detailed in Table NTS.2.
- Preferred programme assessment: the cumulative effects of the preferred programme of options have been completed, to ensure that the effects of the Revised Draft WRMP24 have been identified, described and evaluated. This has included consideration of the cumulative effects of any other relevant plans, programmes or major projects.
- Reasonable alternative plan assessments: the cumulative effects of any reasonable alternative plans have been identified, described and evaluated for consideration along with the preferred plan.

The Revised Draft WRMP24 options have been assessed based on the nature of the effect, its timing and geographic scale, the sensitivity of the human or environmental receptor that could be affected, and how long any effect might last. Assessment matrices have been used to capture the assessment of each measure in a consistent manner.

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

Section 4 of the Environmental Report provides further information in relation to the approach to the assessment of the WRMP24.

What are the Likely Significant Effects of the revised Feasible Options?

Overview

In support of the development of the Draft WRMP24, the SEA has considered a total of 59 feasible supply options, six leakage options and nine feasible demand management options. In total, 74 feasible options were identified. A further 29 supplementary feasible supply options and seven revised demand management options were considered, as part of the development of the Revised Draft WRMP24. This meant that during the process of Draft and Revised Draft WRMP24 preparation, a total of 110 feasible options were considered. However, following Draft WRMP24 consultation and the reconciliation and revision of the options, Wessex Water considered 86 feasible options when selecting its revised preferred options for the Revised Draft WRMP24.

Each option was assessed against the SEA objectives to identify the likely environmental effects during both construction/implementation and operation. The options were assessed based on the nature of the effect, its timing and geographic scale, the sensitivity of the human or environmental receptor that could be affected, and how long any effect might last. Where quantified information was available for the option from Wessex Water, the assessment was also informed by reference to threshold values set out in definitions of significance (see Appendix D to the Environmental Report).

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Section 5 of the Environmental Report presents the detailed results of the feasible options assessment by WRZ, whilst the individual feasible option assessment matrices are presented in Appendix E to the Environmental Report.

Supply Options

A total of 88 feasible supply options were assessed for the Wessex Water Draft and Revised Draft WRMP24. For the construction phase, 71 were assessed as having a significant positive effect on economic and social well-being (SEA Objective 8) due to the associated capital expenditure. No other significant positive effects were assessed against any SEA objectives for the construction phase of the feasible supply options.

51 of the feasible supply options were assessed as having a significant negative effect on biodiversity (SEA Objective 1), 20 of which were assessed as having a significant negative uncertain effect, for the construction phase, due to the potential for construction works associated with the option to result in the loss of/disturbance to habitats and species as a result of, for example, land take, emissions to air and noise. 13 options were assessed as having a significant negative effect on soils, geodiversity and land use (SEA Objective 2), due to their location on best, most versatile agricultural land and the potential for loss of this.

One option has been assessed as having a significant negative effect on water quality (SEA Objective 3) and flood risk (SEA Objective 4) during the construction phase as construction would involve works on two waterbodies, which could affect water flows and/or introduce pollution/debris into these watercourses and would result in the removal of some sections. 65 of the options were assessed as having a significant negative effect on air quality (SEA Objective 5), with nine of these being significant negative uncertain effects, due to the scale of the investment and construction involved it is expected that there would be impacts on traffic congestion during the construction period which could have a negative effect on local air quality and potential for works to take place within an AQMA. 52 options were assessed as having a significant negative effect on greenhouse gas emissions (SEA Objective 6), reflecting the scale of the options and the amount of embodied carbon associated with materials and the requirement for vehicle movements to transport materials and equipment, in addition to the operation of plant and machinery.

13 of the feasible supply options were assessed as having a significant negative effect on economic and social well-being (SEA Objective 8) during the construction phase, as construction may cause increased congestion and disruption/driver delay on the road network due to associated vehicle movements leading to knock-on effects on the local economy.

70 of the options were assessed as having significant negative effects on waste and materials (SEA Objective 11), with three of these being significant negative uncertain effects. This reflects the scale of the options and the amount of waste materials produced during construction. However, 75 options were assessed as having a minor positive uncertain effect on waste and materials (SEA Objective 11) as there is a possibility that waste building materials could be recycled or reused.

45 options were assessed as having a significant negative effect on the historic environment (SEA Objective 12) during the construction phase and 38 were assessed as having a significant negative effect on landscape (SEA Objective 13). This reflects the location of the options and the potential impact on designated sites such as scheduled monuments, listed buildings and World Heritage Sites during the construction phase for SEA Objective 12, and Areas of Outstanding Natural Beauty (AONB's) and National Parks for SEA Objective 13.

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For the operational phase, 39 of the feasible supply options were assessed as having significant positive effects on (SEA Objective 7), economic and social well-being (SEA Objective 8), human health (SEA Objective 9), and 20 were assessed as having significant positive effects on water resources (SEA Objective 10). The additional water availability provided by the options would help to ensure a continual supply of clean drinking water and increase the resilience of supply, thereby increasing adaptability to the effects of climate change. A continual supply of clean drinking water and increased resilience is likely to also support economic/economic growth and support economic social well-being as well as human health.

No other significant positive effects were identified in the assessment of the feasible supply options for the Wessex Water WRMP24 for the operational phase, although all 13 of the reservoir options and six of the transfer options (as they also involved a reservoir) were assessed as having a minor positive effect on flood risk (SEA Objective 4), due to the potential of additional catchment capacity which may help mitigate flood risk in the area.

Twenty of the options were assessed as having significant negative effect on biodiversity (SEA Objective 1), with eleven of these being significant negative uncertain effects, their operation would have negative impacts on local flora and fauna, as well as further downstream, e.g. through increased abstraction or reservoir creation altering hydrological pathways.

17 of the options have been assessed as having a significant negative effect on water quality (SEA Objective 3) as their operation would lead to the decrease in WFD status in certain waterbodies.

17 of the feasible supply options have been assessed as having significant negative effects on greenhouse gas emissions (SEA Objective 6) as they would require energy and generate greenhouse gas emissions associated with abstraction and/or treatment and/or pumping of water. For those options assessed as having a significant effect, this is reflective of the scale of their operation, as it is likely that they are to require significant operational energy resulting in significant carbon emissions of over 2,000 tonnes CO₂e per annum.

Two of the options have been assessed as having significant negative effects on the historic environment (SEA Objective 12) as it is expected that there will be significant ongoing impacts on designated heritage assets in the area associated with their operation.

No other significant negative effects were assessed for the feasible supply options for the Wessex Water WRMP24, but a range of minor and moderate negative effects were identified for other objectives.

Demand Management Options

A total of nine demand management and six leakage feasible options were considered for the Draft WRMP24. For the Revised Draft WRMP24, the previous feasible list of demand management and leakage options was further developed into seven holistic demand management option portfolios. Elements of the original feasible list were taken forward into the development of the portfolio options and the following presents a summary of effects of the seven demand management feasible portfolio options. Section 5 of the Environmental Report presents the findings of the effects of the previous feasible leakage and demand management options.

For the construction phase, all seven revised demand management feasible portfolio options were assessed as having a significant positive effect on economic and social well-being (SEA Objective 8) due to the associated capital expenditure. No other significant positive effects were assessed

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against any SEA objectives for the construction phase of the feasible demand management options.

All seven of the revised demand management feasible portfolio options were assessed as having a significant negative effect on greenhouse gas emissions (SEA Objective 6) and waste and materials (SEA Objective 11) for the construction phase. This reflects the scale of the options and the amount of embodied carbon associated with materials to be used, as well as the actual waste materials produced during construction. However, all 7 options were also assessed as having a minor positive uncertain effect on waste and materials (SEA Objective 11) as there is a possibility that waste building materials could be recycled or reused. No further significant effects were identified against the SEA objectives for the demand management options during the construction phase, although seven options were assessed as having minor or moderate uncertain negative effects were assessed against air quality (SEA Objective 5) as construction traffic may contribute negatively to local air quality as well as cause increased congestion and disruption/driver delay on the road network due to associated vehicle movements.

For the operational phase, all seven of the options were assessed as having a positive effect on climate change resilience (SEA Objective 7), economic and social well-being (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10). Four options were assessed as having a significant positive effect on greenhouse gas emissions (SEA Objective 6). The reduction in energy use through reduced demand for energy to abstract, treat and put water back into supply would cause a reduction in greenhouse gas emissions. The additional water availability provided by the options would help to ensure a continual supply of clean drinking water and increase the resilience of supply, thereby increasing adaptability to the effects of climate change. A continual supply of clean drinking water and increased resilience is likely to also support economic/economic growth and support economic social well-being as well as human health.

No other significant positive effects were identified in the assessment of the feasible demand management options for the Wessex Water WRMP24 for the operational phase.

No significant negative effects were assessed for the operational phase of the feasible demand management options for the Wessex Water WRMP24.

What are the Likely Significant Effects of the Revised Draft WRMP and any Reasonable Alternatives?

WWSL's draft WRMP24 includes 16 supply options to maintain and enhance operational resilience. It also includes three demand management and metering options and one leakage option. These have been selected from the feasible options using decision-making tool to determine the best value plan.

Table NTS.3 to NTS.5 lists the preferred options and summarises the assessment findings for each option.

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Table NTS.3 Assessment of the Revised Draft WRMP24 Preferred Supply Options

Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
22.04	Construction (negative)	-/?	0	0	0	--	-	0	-	0	0	--	-	-
	Construction (positive)	0	0	0	0	0	0	0	++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	0	-	0	0	0	0	-	0	0
	Operation (positive)	+	0	0	0	0	0	+	+	+	+	0	0	0
39.01	Construction (negative)	-	0	--/?	0	--	-	0	--	-	0	--	-	--
	Construction (positive)	0	+	0	0	0	0	0	++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	-/?	0	0	0	0	0	-/?	-	-
	Operation (positive)	+	0	0	0	0	0	++	++	++	++	0	0	0
39.02	Construction (negative)	-	0	0	--	-	-	-	-	-	0	-	0	-
	Construction (positive)	0	0	0	0	0	0	0	+	0	0	+/?	0	0
	Operation (negative)	0	0	-/?	--	0	-	0	0	0	0	-/?	0	0
	Operation (positive)	+	0	0	0	0	0	+	+	+	+	0	0	0

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
41.01	Construction (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Construction (positive)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (negative)	0	0	0	0	0	0	0	0	0	0	-/?	0	0
	Operation (positive)	0	0	0	0	0	+/?	+	+	+	+	0	0	0
41.06	Construction (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Construction (positive)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (negative)	-	0	0	0	0	0	0	0	0	0	-/?	0	0
	Operation (positive)	0	0	0	0	0	+/?	+	+	+	+	0	0	0
59.01	Construction (negative)	-	-	-/?	--	-	-	-	-	-	0	-	--	--
	Construction (positive)	0	+	0	0	0	0	0	+	0	0	+/?	0	0
	Operation (negative)	0	0	0	-/?	0	-	0	0	0	0	-/?	-	-
	Operation (positive)	+	0	0	0	0	0	++	++	++	++	0	0	0
70.01	Construction (negative)	---/?	-	-/?	--	---/?	--	-	-	-	0	---	---	---

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	0	-	0	0	0	0	-/?	-	-
	Operation (positive)	++	0	0	0	0	0	++	++	++	++	0	0	0
70.06	Construction (negative)	---/?	-/?	-/?	--	---	---	-	-	-	0	---	---	---
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	--	-	--	0	0	0	0	-/?	-	-
	Operation (positive)	+	0	0	0	0	0	+	+	+	+	0	0	0

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Table NTS.4 Assessment of the Revised Draft WRMP24 Demand Management Options

Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
9.16	Construction (negative)	-/?	0	0	0	0	-/?	0	0	0	0	-/?	0	0
	Construction (positive)	0	0	0	0	0	0	0	0	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	+/?	+++	+++	+++	+++	+/?	0	0
9.19	Construction (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Construction (positive)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	+/?	++	++	++	++	+/?	0	0
57.07	Construction (negative)	0	0	0	-/?	--/?	---	-/?	-/?	-/?	0	---	0	0
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	-	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	+	+++	+++	+++	+++	0	0	0

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Construction of the revised preferred programme of supply side options, in addition to the implementation of the demand management options, will involve significant capital expenditure during the construction phase. This is considered to have a significant positive effect on the local economy (SEA Objective 8) through job creation and use of local supply chains which could provide the potential for a number of local businesses and SMEs to have sustained involvement and opportunities in construction. Three options (70.01, 70.06 and 57.07) were individually assessed as having a significant positive effect against SEA Objective 8 during construction, as they would each involve a significant capital expenditure (>£15m).

No other significant positive effects were identified during construction from the revised preferred programme of options.

Likely significant negative uncertain effects on biodiversity (SEA Objective 1) were individually assessed for options 70.01 and 70.06 during the construction phase. This reflects that pipeline routes as currently proposed for the two options would lead to direct effects on the Spye Park and Roundway Down and Covert SSSI's (70.01) and on the Whitesheet Hill SSSI and two areas of Ancient Woodland (70.06). However, WWSL has agreed that further works will be undertaken on both options to avoid and mitigate effects at the scheme level which will include detailed routing that avoids effects, preferentially follows existing roads or other appropriate linear infrastructure and through the application construction best practice/mitigation. Taking these measures into account, overall it is not considered that the preferred programme would lead to significant negative effects on biodiversity.

Construction of the preferred programme of options will generate emissions to air (e.g. from vehicle movements and the operation of construction plant and machinery) which could affect local air quality. Effects are likely to be more pronounced at sensitive receptors along transport corridors and/or where development is located within or near Air Quality Management Areas (AQMA) (although none of the preferred programme of options are situated within an AQMA). Overall, the construction of the preferred programme of options has been assessed as having a likely significant negative effect on air quality (SEA Objective 5) during the construction phase. This largely reflects that both options 70.01 and 70.06 were each individually assessed as having a significant negative effect on this objective, reflecting the large scale of the construction works envisaged for both options.

In total, the construction of the preferred programme of supply side options would require materials with 29,051 tCO₂e embodied carbon. Construction would also generate a substantial volume of vehicle movements which, together with the operation of plant and machinery, will additionally contribute to carbon emissions. Additionally, the demand management, leakage and metering options would require significant quantities of materials with a total of 223,540 tCO₂e embodied carbon. As such the preferred programme has been assessed as having a significant negative effect on greenhouse gas emissions (SEA Objective 6) during the construction phase. Two options (70.06 and 57.07) were individually assessed as having a significant negative effect on this objective.

Given the cumulative concrete, steel and plastics that would be required to construct the preferred programme of supply options, there is likely to be a significant amount of waste generated (although there is some potential for re-use of materials the presence and extent is uncertain). The preferred demand management, leakage and metering options are also anticipated to involve

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significant material requirements during their implementation. As such, the preferred programme has been assessed as having a significant negative effect on waste and materials (SEA Objective 11). Three options (70.01, 70.06 and 57.07) were each assessed as individually having a significant negative effect in this regard.

The preferred programme was assessed as having a significant negative effect on the historic environment (SEA Objective 12) during construction. This primarily relates to the effects of two options (70.01 and 70.06), which were individually assessed as having a significant negative effect on this objective as they would include new infrastructure proposals that could directly affect scheduled monuments, listed buildings and registered park and gardens. The proposed options would also be within 1km of a number of other sensitive heritage assets (including the City of Bath World Heritage Site for 70.01). It is however noted that effects could be avoided, minimised or mitigated through further review of proposed siting and pipeline routes, and for 70.01, the proposed route follows the route of a pre-existing pipeline or existing roads and that where assets are crossed, works would take place on previously disturbed ground.

The construction and operation of the preferred programme of options was assessed as having a likely significant negative effect on landscape/townscape (SEA Objective 13). This reflects that a number of options are identified as being located fully or partially within designated landscapes and more generally, the potential for options to lead to negative effects on local landscape/townscape (particularly where they are situated within rural locations) and impact on visual amenity (particularly where they are situated in close proximity to residential receptors). Two options (70.01 and 70.06) were individually assessed as having a significant negative effect on SEA Objective 13 as they would involve significant works within the Cranborne Chase and West Wiltshire Downs AONB (70.06) and the North Wessex Downs AONB (70.01).

Operation

Cumulatively the preferred programme of options would increase the capacity by supply of 26.18 M/d, include a demand management reduction of 96.25 MI/d, make a significant contribution towards securing a continual supply of clean drinking water and increase resilience of supply, increasing resilience and adaptability to the effects of climate change, supporting population and economic growth and human health and wellbeing. As such, the preferred programme was assessed as having a significant positive effect on climate change resilience (SEA Objective 7), economic and social wellbeing (SEA Objective 8), human health and wellbeing (SEA Objective 9) and water resources (SEA Objective 10). Two options (9.16 and 57.07) were individually assessed as having a significant positive effect against each of these objectives.

During operation, the preferred programme of supply options would, generate an estimated 2,171 tCO₂e per annum (for example, associated with electricity required for the pumping and treatment of water) and although this would be offset to an extent by the demand management, leakage and metering options, it is assessed as being above the threshold for a significant effect on greenhouse gas emissions (SEA Objective 6).

Reasonable Alternative Plans

Wessex Water has developed different plan options and tested these under different future growth and demand scenarios to address the future predicted supply deficits. On the basis of those supply options most commonly selected if the revised preferred options were not available, an alternative

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best value programme has been identified. A summary of their assessment is presented in table NTS.5.

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Table NTS.5 Assessment of the Reasonable Alternative Supply Options

Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
30.02 Pump Storage – Quantock Reservoir	Construction (negative)	-	-	-/?	--	-	-	-	-	0	0	-	-	--
	Construction (positive)	0	0	0	0	0	0	0	+	0	0	+/?	0	0
	Operation (negative)	--/?	0	0	--	0	-	0	--	--	--	-	-	-
	Operation (positive)	0	0	0	0	0	0	+	+	+	+	0	0	0
52.02 Poole Water Recycling and Transfer – Stour use 50%	Construction (negative)	---/?	--	-/?	--	---	---	-	--	--	0	---	--	--
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	-/?	0	---	-	0	--	0	0	0	0	-	-	-
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0
52.03 Poole Water Recycling and Transfer – Stour use 100%	Construction (negative)	---/?	--	-/?	--	---	---	-	--	--	0	---	--	--
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	-/?	0	---	-	0	--	0	0	0	0	-	-	-
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0
70.03 Bristol Import and onwards transfer III	Construction (negative)	---	---	-/?	--	---	---	-	---	--	0	---	---	---
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0



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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
	Operation (negative)	0	0	-/?	--	0	---	0	0	0	0	-/?	-	-
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0

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Options 52.02, 52.03 and 70.03, individually would require a significant capital investment (>£15m) to complete their construction and as such, were assessed as having a significant positive effect on economic and social well-being (SEA Objective 8), due to the potential for the generation of employment opportunities, supply chain benefits and spend by construction workers and contractors in the economy.

Options 52.02, 52.03 and 70.03 were each assessed as having a significant negative or significant negative uncertain effect on biodiversity (SEA Objective 1) during construction as they would involve works that would cross designated sites such as SPAs (52.02, 52.03), SACs (52.02, 52.03), Ramsars (52.02, 52.03), SSSIs (52.02, 52.03), LNRs (52.02, 52.03, 70.03) and Ancient Woodland (70.03) and would involve works in proximity to others. As such construction works could affect these designated features through direct landtake (where sites are crossed by the works), noise and disturbance, although such effects could be reduced through appropriate mitigation and best practice construction measures.

Option 70.03 was assessed as having a significant negative effect on soils, geodiversity and land use (SEA Objective 2) during construction, reflecting the significant loss of greenfield land including that which is 'best and most versatile' agricultural land, in addition to crossing nine areas identified as being historic landfill sites, with the potential to expose contaminated material during construction.

Construction of water resources infrastructure generates waste and requires materials/resource with associated embodied carbon, in addition to carbon emissions from construction vehicles and the use of plant and machinery, which also has the potential to affect local air quality. Given the scale of the construction works, options 52.02, 52.03 and 70.03 were individually assessed as having significant negative effects on air quality (SEA Objective 5), greenhouse gas emissions (SEA Objective 6) and waste and materials (SEA Objective 11).

Option 70.03 was assessed as having a significant negative effect on the historic environment (SEA Objective 12) during construction. This reflects that the option would involve works crossing a number of heritage assets/sites (City of Bath World Heritage Site, a Scheduled Monument, 13 Listed Buildings, five Conservation Areas and a Registered Battlefield) and in close proximity to others, with the potential for impacts on the integrity (where crossed) and setting of said assets/sites. Additionally, the construction of option was assessed as having a significant negative effect on landscape (SEA Objective 13) as it would involve significant works within the Cotswolds AONB, with associated potential for effects on could affect the visual amenity of the designated landscape.

Operation

Options 52.02, 52.03 and 70.03 were assessed as having significant positive effects against climate change (SEA Objective 7), economic and social wellbeing (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10) during operation, as the significant yield (water) they would provide would help to ensure a continual supply of clean drinking water, thereby supporting economic/population growth, generating a positive effect on human health and increasing adaptability to the effects of climate change. Overall the Reasonable Alternative Plan would have a significant positive effect on these objectives.

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Options 52.02 and 52.03 were assessed as having a significant negative effect on water quality (SEA Objective 3), during the operational phase as the WFD assessment concluded that operation of the options would be WFD non-compliant due to the reduction in flows into Poole Harbour and the introduction of a new discharge on the Stour (Lower) Water Body.

The operational phase of option 70.03 was assessed as having a significant negative effect on greenhouse gas emissions (SEA Objective 6), as the operation of the option would result in significant carbon emissions (>2,000 tonnes CO₂e) associated with the energy required for treatment and pumping of water.

The detailed assessment of the preferred options and the Preferred Programme of options are contained in Section 6.2 and 6.3 of the Environmental Report respectively, whilst the assessment of the reasonable alternative plan is contained in Section 6.4. The assessment of the cumulative effects of the Revised Draft WRMP in-combination with other plans and programmes are reviewed in Section 6.5.

What are the Proposed Mitigation and Enhancement Measures?

As noted above, in some cases, there is an opportunity to reduce some of the potential negative effects identified during the assessment of the Revised Draft WRMP24 and to enhance positive effects. The detail of this mitigation needs to be considered during the planning phases of each of the individual component schemes if taken forward.

Potential mitigation measures are summarised in Section 6.6.

How will the effects of the WRMP be monitored?

Once the WRMP is implemented, its effects on the environment and people will need to be monitored. Monitoring the significant effects of the WRMP can help to answer questions such as:

- Were the SEA predictions of effects accurate?
- Is the WRMP contributing to the achievement of the SEA objectives?
- Are mitigation measures performing as well as expected?
- Are there any adverse effects? Are these within acceptable limits, or is remedial action desirable?

Section 7 of the Environmental Report identifies a number of potential indicators that could be used for monitoring the effects of the WRMP's implementation. Monitoring proposals will be considered further and a final monitoring framework that satisfies the requirements of the SEA Directive will be presented in the Post Adoption Statement.

What are the Conclusions?

Wessex Water's baseline supply-demand balance in the Revised Draft WRMP24 shows that as a consequence of further regulatory planning requirements, notably changes to licence reductions in 2035 and leakage and efficiency targets, that the deficit is forecast to be over 130 Ml/d by 2079/80 under the dry year critical period scenario.

The forecast deficit will be addressed through the implementation of the supply side, demand management and leakage options that comprise the preferred programme of WRMP24 options.

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Following the application of the decision-making tools and testing to the 86 feasible options, Wessex Water identified a total of 11 revised preferred options comprising of eight supply options, and three demand management option. Of this total, seven were previously included in the Draft WRMP24.

Overall, the Revised Draft WRMP24 is considered to have significant positive operational effect against climate change resilience (SEA Objective 7), economic and social wellbeing (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10) as the additional design capacity (water) they would provide would help to ensure a continual supply of clean drinking water, supporting economic/population growth, generating a positive effect on human health and increasing adaptability to the effects of climate change.

All options included in the Revised Draft WRMP24 are considered to be WFD compliant (both individually and cumulatively).

The HRA has provisionally concluded that options could either be screened out as not having any likely significant effects, or would not have adverse effects on the integrity of European sites following the implementation of established scheme-level mitigation.

Where negative effects have been identified, generally, these are expected to be either minor or moderate only, although uncertainties remain. The exception to this is in respect of air quality (SEA Objective 5), climate change (SEA Objective 6) waste and materials (SEA Objective 11), historic environment (SEA Objective 12) and landscape (SEA Objective 13) where significant negative effects have been identified during construction. With respect to SEA objectives 5, 6 and 11, these effects reflect the emissions to air, energy and resource use associated with the implementation of the water management measures which is to a large extent unavoidable (although effects may be reduced at the project stage through, for example, the use of renewable energy and sustainably sourced construction materials). With respect to the historic environment (SEA Objective 12) further work is required on pipeline routes to avoid designated sites. With respect to landscape (SEA Objective 13), further work is required to ensure the sympathetic and planning policy compliant design and screening of new above ground infrastructure when sited in AONBs.

Detailed mitigation and enhancement measures have been identified to help avoid, minimise, reduce or mitigate effects where identified.

When compared to the assessment of effects the reasonable alternative plan, Wessex Water's Revised Draft WRMP24 performs better against the SEA objectives than the reasonable alternative options, and does not have a WFD non-compliance risk. Overall, it is considered to provide additional resilience to respond to a greater range of future scenarios and best able to support future population, household and economic growth within the Wessex Water region.

What are the Next Steps in the SEA Process?

Wessex Water is submitting the Revised Draft WRMP24 and this Environmental Report to the Secretary of State for Environment, Food and Rural Affairs. Once directed to do so, Wessex Water will publish and implement the Final WRMP24 accordingly.

In conjunction with publishing the final WRMP24, a Post Adoption Statement will also be issued (to meet the requirements of SEA regulation 16 (4)). This will set out the results of the consultation and SEA processes and the extent to which the findings of the SEA have been accommodated in the final plan.

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Once the Final WRMP24 has been published, the selected schemes for water resource management will need to be implemented through specific projects. As part of this process, each project may be subject to further assessment to understand and manage its potential environmental and social impacts. These assessments, which may include HRA and EIA, will take account of the issues discussed in this report but will also be informed by the greater detail available as the work progresses about construction techniques, building materials, and agreed locations and routes.

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1. Introduction

1.1 Overview

- 1.1.1 Wessex Water Services Limited (Wessex Water) is currently finalising its Water Resources Management Plan 2024 (WRMP24). Once approved, the WRMP will set out a long-term, best value and sustainable plan for water supplies in the Wessex Water operational area. The WRMP24 plans for an adequate supply to meet demand from 2025 to 2050 and beyond, and a supply system that is resilient to drought.. WRMPs are reviewed on a rolling five-year basis, with Wessex Water’s most recent plan being published in 2019.
- 1.1.2 As part of the preparation of WRMP24, Wessex Water published its Draft Water Resources Management Plan 2024 (Draft WRMP24) for consultation between the 28th November 2022 and 20th February 2023, following submission to the Secretary of State for Environment, Food and Rural Affairs. The Draft WRMP24 set out Wessex Water’s proposals to ensure continued delivery of a secure and reliable supply of water from 2025 to 2050, looking beyond out to the year 2100.
- 1.1.3 WRMPs must comply with international, UK and national legislation pertaining to the environment, as well as associated guidance on the development of WRMPs¹⁰. This includes The Environmental Assessment of Plans and Programmes Regulations 2004 (the ‘Strategic Environmental Assessment (SEA) Regulations’). It assesses the likely environmental effects of the plans and identifies ways in which adverse effects can be avoided, minimised or mitigated and how any positive effects can be enhanced. In doing so, the SEA will be used to inform the development and selection of the water resource management options that will comprise the WRMP24.
- 1.1.4 Taking into account the responses received to the consultation on the Draft WRMP24 from regulators, stakeholders and the public, further engagement and environmental assessment, Wessex Water has selected its preferred plan for WRMP24. A Revised Draft Water Resources Management Plan 2024 (Revised Draft WRMP24) has subsequently been prepared and is being submitted to the Secretary of State for Environment, Food and Rural Affairs for approval. As part of the ongoing, iterative SEA process, the assessment contained in the Draft WRMP Environmental Report has been reviewed and updated in order to ensure that the environmental effects of the Revised Draft WRMP24 have been fully characterised and assessed, taking into account consultee comment and updated information. This Environmental Report presents the findings of the SEA of the Revised Draft WRMP24. The purposes of the report are:
- to ensure that the likely significant environmental and socio-economic effects of the Revised Draft WRMP24 and any reasonable alternatives are identified, characterised and assessed;

¹⁰ UK Government (2022) *Water Resource Planning Guidance (WRPG)* [online]. Available at: <https://www.gov.uk/government/publications/water-resources-planning-guideline/water-resources-planning-guideline>. [Accessed 08.08.22].

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- to help identify appropriate measures to avoid, reduce or mitigate adverse effects and to enhance beneficial effects associated with the implementation of the Revised Draft WRMP24 wherever possible;
- to provide a framework for monitoring the potential significant effects arising from the implementation of the Revised Draft WRMP24;
- to inform 's decisions on the Revised Draft WRMP24; and
- to demonstrate that the Revised Draft WRMP24 has been developed in a manner consistent with the requirements of the SEA Regulations.

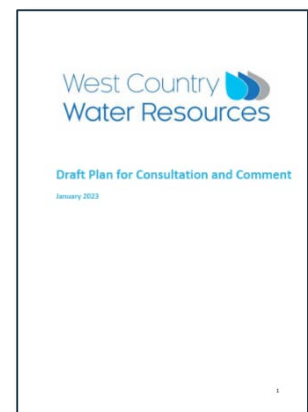
1.2 Water Resource Planning

1.2.1 Water resources management planning is being undertaken regionally and by all water companies in England and Wales in order to ensure reliable, resilient water supplies over the long-term planning horizon.

1.2.2 Water resources management planning includes working out and forecasting how much water customers will need over the planning period (assessing demand) and how best to provide it (assessing options to reduce or constrain demand growth and/or augment reliable supplies of water) in an efficient, timely manner (programme appraisal). Companies (individually, and in collaboration across a region) identify the preferred, 'best value' programme of demand management and water supply options to develop an overall strategy to maintain a balance between reliable supply and demand.

Regional Planning

1.2.3 Water companies in England and Wales have a statutory requirement to prepare a WRMP every five years. Wessex Water is developing its WRMP24 within the context of the West Country Water Resources (WCWR) Regional Plan¹¹ for the management of water resources in the south-west of England. It includes all of the operational areas of Bristol Water, Bournemouth Water, South West Water and Wessex Water. WCWR updated its Resource Position Statement¹² in March 2021 and produced its Initial Draft Reconciliation Plan¹³ in August 2021 and Emerging Draft Regional Plan¹⁴ in January 2022. WCWR produced its Draft Regional Plan¹⁵ in January 2023.



¹¹ EA (2020) *Water Resources National Framework*: Appendix 2: Regional planning

¹² WCWR (2021) *Resource Position Statement Update* (March 2021)

¹³ WCWR (2021) *Initial draft regional plan for reconciliation* (August 2021). Available online: <https://www.wcwr.org/siteassets/document-repository/reports/initial-draft-regional-plan-for-reconciliation-final.pdf>

¹⁴ WCWR (2022) *Emerging Plan for Consultation and Comment* (January 2022). Available online: <https://www.wcwr.org/siteassets/document-repository/reports/emerging-plan-for-consultation-and-comment-1.pdf>

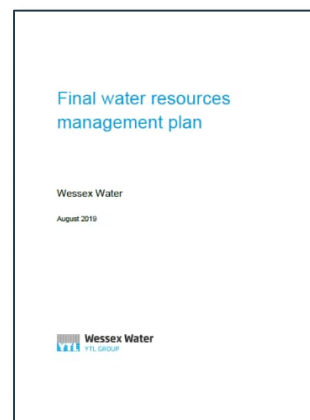
¹⁵ WCWR (2022) *Draft Plan for Consultation and Comment* (January 2023). Available online: <https://www.wcwr.org/siteassets/document-repository/reports/draft-west-country-water-resources-plan-31jan2023.pdf>

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- 1.2.4 The Draft Regional Plan indicates that whilst large scale demand reductions can be reliably achieved, due to the effects of population growth, climate change, increased drought resilience and the need for sustainable reduction in abstractions, the region is likely to face a shortfall for water users ranging from 130Mld to 326MI/d under a number of different scenarios considered. The Draft Regional Plan outlines the potential strategic¹⁶ supply-side options that are being investigated in the West Country in parallel with demand reduction options. Supply-side options include new reservoirs, enhancements to existing reservoirs and effluent recycling.
- 1.2.5 The Draft Regional Plan identifies Wessex Water as one of two WRZs where the supply demand balance is particularly constrained under critical dry period conditions. It identifies potential Strategic Resource Options (SROs) to address this deficit, including the Cheddar Two Reservoir, the Mendip Quarries Reservoir and the Poole effluent recycling and transfer. The plan suggests that for Wessex Water, in the long-term the use of groundwater as the primary source of water will reduce (indicatively from over 70% to approximately 40%) as new alternative sources of water come online to replace reduced groundwater abstraction.

Water Resource Management Plans

- 1.2.6 Wessex Water is responsible for providing over 1.3 million people in the south-west with drinking water and for taking away and properly disposing of the associated wastewater. It also has nearly 50,000 business customers, and in total delivers more than 340 million litres of drinking water every day¹⁸.
- 1.2.7 Wessex Water, along with all water companies in England and Wales, has a statutory requirement¹⁹ to prepare, maintain and publish a WRMP. The WRMP sets out how the balance between water supply and demand, and security of supply, will be maintained over a minimum of 25 years in a way that is economically, socially and environmentally sustainable. This will include public water supply (PWS) and non-public water supply (non-PWS). WRMPs are reviewed on a rolling five-year basis, the most recent being published in 2019.
- 1.2.8 Where the supply-demand balance identifies water resource zones (WRZs) in deficit over the lifetime of the plan, a WRMP presents options for its resolution. The plan process initially reviews as many potential solutions as possible (the 'unconstrained list' of options) to identify 'feasible' options for each Water Resource Zone²⁰ (WRZ) which will contribute to meeting the supply demand



¹⁶ Strategic regional solutions are options that generate new water resources and enable the new water resource to be used regionally. They involve more than one water company and will provide a significant yield (typically more than 10 MI/d).

¹⁸ Wessex Water (2019) Final Water Resource Management Plan. Available online: <https://www.wessexwater.co.uk/environment/water-resources/management-plan>. [Accessed 6/1/22]

¹⁹ Section 37 and 37A of Water Industry Act 1991, as amended by the Water Act 2003 and the Water Act 2014.

²⁰ Section 4.4. of the WRPG defines a water resource zone as "an area within which the sources of water and distribution of water to meet demand, is largely self-contained (with the exception of agreed bulk transfers)".

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deficit across the operational area. Types of water resource management options considered to meet any forecast deficit in a WRZ can include:

- Customer options which include measures to manage the demand for water such as smart meters, rainwater harvesting, greywater recycling or household visits to install water efficiency measures;
- Distribution options which include measures to optimise the efficiency of water networks, reduce leakage and minimise any unscheduled resource losses;
- Production options include measures to increase the efficiency and effectiveness of treatment processes;
- Resource management options which include measures to increase supply such as greater peak output at existing groundwater sources, reservoir or surface water supply and which will include SROs; this also includes catchment management options, for example nature-based solutions;
- Non-PWS options which include any options which increase water resource availability or reduce the need for abstraction outside of that needed for public water supplies.

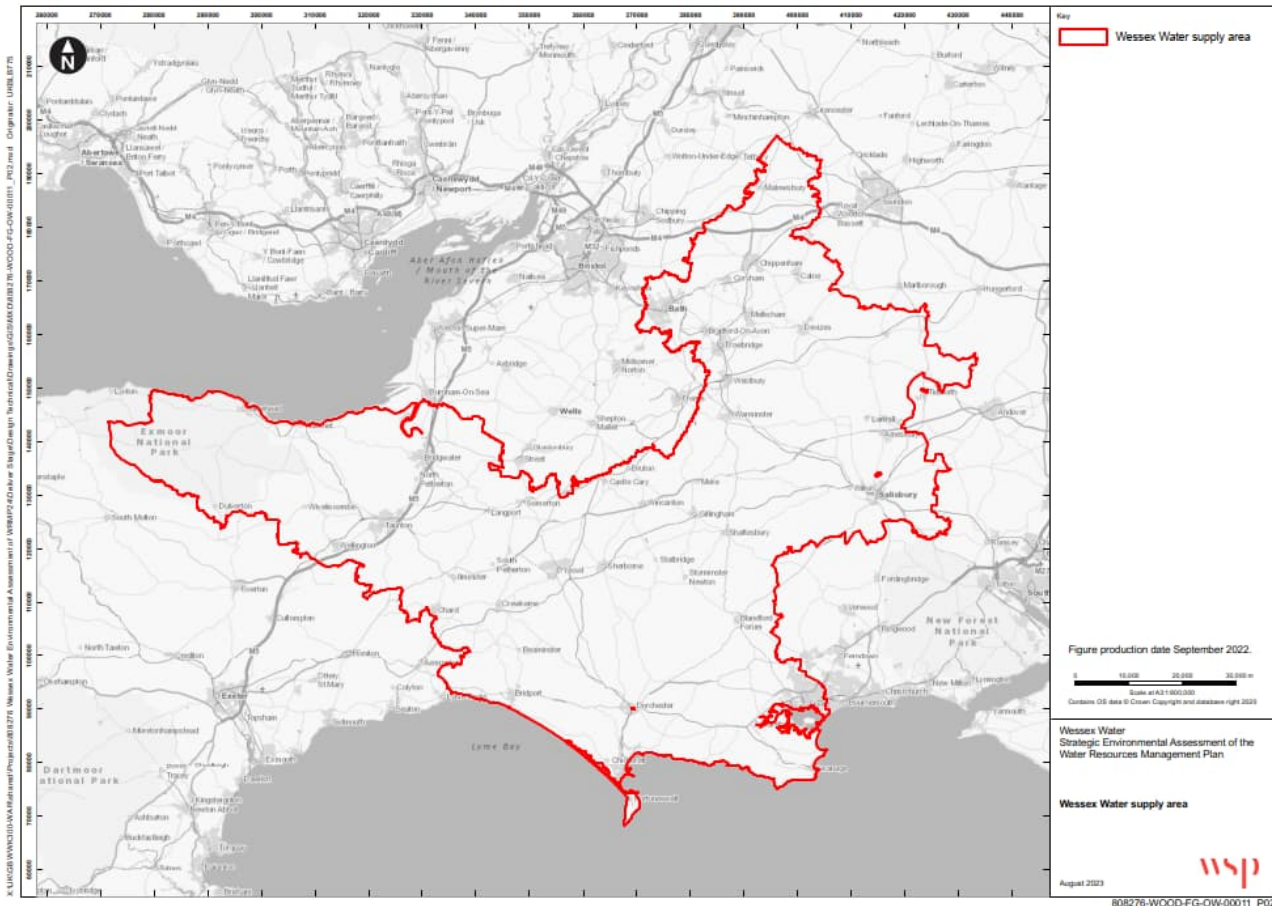
1.2.9 The 'feasible' options are reviewed to identify the preferred plan options that comprise the proposed plan programme, taking into account alternative plan pathways developed in response to different scenarios, to resolve any supply deficits in relation to financial, environmental and social costing and, potentially, to facilitate water trading between companies.

Wessex Water's WRMP24

- 1.2.10 Wessex Water operates a single integrated water resource zone which covers its entire supply area (presented in Figure 1.1). It comprises the following key connections:
- The Spine Main and Central Area Link Main (CALM) that allows the transfer of water from major surface reservoir sources in Somerset to demand centres in the centre and north of the region (this can be reversed if required during dry periods).
 - Transfer of groundwater from Malmesbury and the Great Oolite aquifer near Chippenham to north Bath.
 - The East/West link main that transfers water from the Poole region to Dorchester and Weymouth, and from Dorchester to Poole.
 - The Integrated GRID that connects sources in the south of the region (Corfe Mullen area) to Salisbury via Blandford and Shaftesbury, and which reduces abstraction in the upper Hampshire Avon catchment.

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Figure 1.1 Wessex Water Supply Area



- 1.2.11 Supply surpluses were identified in WRMP14 and WRMP19 and no supply-side measures were therefore identified in these plans, although measures to reduce water usage were included. In the current 2020-25 period WWSL are delivering a 15% leakage reduction alongside increasing the proportion of metered households and enhanced water efficiency activities, which contribute to the strategy for secure water supplies.
- 1.2.12 For the development of WRMP24, there have been several step changes in the regulatory planning requirements:
- Drought resilience: improving resilience to droughts, by moving from the current 1-in-200 drought events to 1-in-500 drought resilience by 2039, or 2050 at the latest.
 - Licence reductions: reducing abstraction from environmentally sensitive sources, particularly in the chalk catchments by 2035, and avoiding increased abstraction in the Hampshire Avon catchment to meet new growth.
 - Decision-making: moving away from least-cost planning to best-value planning. This considers least-cost solutions alongside other outcomes, including carbon emissions, natural capital, and biodiversity net gain.
 - Distribution Input: meeting the industry's commitments to reduce the use of public water supply in England per head of population by 20% by 2038, a target set by Defra under the Environment Act 2021.

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- Leakage: contributing to the target to reduce leakage by 50% by 2050.
 - Household demand: contributing to a national ambition on average per capita consumption of 110 litres/person/day by 2050.
- 1.2.13 The combined potential impact of these new requirements means that, with no interventions, Wessex Water forecasts to have an overall planning deficit of over 130 MI/d by 2079/80 under the dry year critical period scenario, with significant licence reductions in 2035.
- 1.2.14 To address this forecast deficit, Wessex Water have developed and screened a number of options to both increase supply and reduce demand. The screening process consisted of four key stages which moved from a high level of assessing criteria to carrying out in depth environmental and costing assessments. Options were identified at varying scales, from schemes that would assist localised areas of water stress, through to Strategic Resource Options in conjunction with neighbouring water companies within the West Country Water Resources Group. Wessex Water have also liaised with other water companies at a national scale to recognise any opportunities which would be mutually beneficial to many regions. It will also require the need to complete further AMP cycle investigations to confirm the actual licence reduction requirements.
- 1.2.15 In consequence, Wessex Water has screened its list of unconstrained options and has identified a total of 86 feasible options, comprised supply side (resource management) options and 'demand-side' (customer, distribution and production) options. The supply side options, include:
- enhancements to network operations and existing transfers;
 - new reservoir storage schemes and increasing storage at existing sites;
 - new transfers;
 - effluent re-use schemes;
 - modifications to existing source abstraction.
- 1.2.16 Wessex Water has developed a number of different plan options and tested these under different future growth and demand scenarios to address the future predicted supply deficits both at a companywide level and also at a sub-zone level. A decision-making tool has been applied to choose the optimum combination of supply and demand options to meet any deficits across the planning horizon. In response to regulator requests, additional options have been included to consider the effects of drought measures being implemented including restrictions on use (temporary use bans and non-essential use bans), drought orders, and assuming less severe droughts.

Wessex Water's Revised Draft WRMP24

- 1.2.17 Following consultation on the Draft WRMP24, Wessex Water has reviewed its best value plan for WRMP24 and as a result, the preferred plan contained in the Draft WRMP24 has been modified.

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- 1.2.18 A key features of the Revised Draft WRMP24 is a commitment to continue protecting chalk streams, as part of the Environment Agency's Environmental Destination programmes, by substantially reducing further abstraction licences by 2035. To achieve these abstraction reductions to protect the environment, and continue to provide a drought resilient service to customers, Wessex Water has committed to:
- Rollout advanced metering infrastructure (AMI) smart meters to 95% of customers by 2035.
 - Enhance their household and non-household water efficiency programmes.
 - Promote the anticipated government water efficient labelling of appliances.
 - Continue to reduce leakage levels from 2025 to meet the regulatory target of 50% reduction by 2050.
 - Develop in 2025 a stream support option for two upper stour headwater catchments.
 - By 2025, take forward several supply side schemes through design and development to be ready for potential delivery to meet licence reductions in 2035, depending on the outcome of future need and the needs of other users in the Hampshire Avon catchment.
 - Given the scale of deficit in the long term, continue to investigate new regional strategic resource options, such as effluent re-use and/or a new reservoir in the Mendips, with South West Water as our main partner on the West Country Resources Group.
- 1.2.19 In combination, the options included in the preferred plan will ensure Wessex Water meet:
- the statutory water demand target to reduce the demand for water from public water supply per head of population in England by 20% by 2037/38 from the 2019/20 baseline;
 - the long-term target to reduce average per capita water consumption to 110 l/p/d by 2050;
 - the long-term target to reduce leakage by 50% by 2050; and
 - the long-term target to reduce non-household water use by 15% by 2050.
- 1.2.20 Further detail in respect of the revised preferred plan and its component options is contained in Section 6 of this report. Detailed information in relation to the development of the preferred plan is contained in the Revised Draft WRMP24.

1.3 Strategic Environmental Assessment

Overview

- 1.3.1 SEA is required under Statutory Instrument 2004 No.1633 - The Environmental Assessment of Plans and Programmes Regulations 2004. Throughout the course of the development of the plan, policy or programme, the aim of SEA is to identify the potential impact of

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options proposed in the plan in terms of their environmental, economic and social effects. If any adverse effects are identified, these options can then be avoided or proposals modified to manage or mitigate adverse effects.

- 1.3.2 The SEA Regulations transposed the requirements of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment. Following the UK's exit of the EU and the end of the transition period (31st December 2020), the SEA Directive no longer applies to the UK.

Applying SEA to the Water Resource Plans

- 1.3.3 The SEA Regulation 5 requires “an environmental assessment ... of certain plans and programmes which are likely to have significant effects on the environment”. Plans and programmes are defined as those:
- *“which are subject to preparation and/or adoption by an authority at national, regional or local level or which are prepared by an authority for adoption, through a legislative procedure by Parliament or Government; and*
 - *which are required by legislative, regulatory or administrative provisions”* (Regulation 2 (1)).
- 1.3.4 Guidance produced by the European Commission (EC)²¹ indicates that in preparing plans for ensuring water resources, privatised utilities companies can be considered an authority because they are providing services that would be carried out by public authorities in a non-privatised regime. The preparation of a WRMP is a statutory requirement and therefore meets the requirements of Regulation 2.
- 1.3.5 Plans and programmes that may have significant effects on the environment are identified as those:
- *“which are prepared for... water management... and which set the framework for future development consent of projects listed in Annexes I and II to Directive 85/337/EEC [the Environmental Impact Assessment Directive]; or*
 - *which, in view of the likely effect on sites, have been determined to require an assessment pursuant to Article 6 or 7 of Directive 92/43/EEC [the Habitats Directive]”* (Regulation 5 (2)).
- 1.3.6 Broadly, this includes plans that may include development of infrastructure to source, store, transfer or manage water, or may affect sites that have European designations (Special Areas of Conservation (SACs), Special Protection Areas (SPAs), and Ramsar sites).

²¹ EC (2003) *Implementation of Directive 2001/42 on the Assessment of the Effects of Certain Plans and Programmes on the Environment*. Available online: http://ec.europa.eu/environment/archives/eia/pdf/030923_sea_guidance.pdf

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- 1.3.7 Government²², regulator²³ and industry²⁴ guidance indicates that there is a requirement for water companies, as responsible authorities, to determine if their WRMPs fall within the scope of the SEA Regulations and whether a SEA must be undertaken. An SEA screening has been completed to consider this requirement explicitly.

Applying SEA to Wessex Water's Water Resources Management Plan 24

Screening

- 1.3.8 The screening has been undertaken of the Wessex Water emerging WRMP24 to determine if all the stages of a SEA are required. In consequence, the flow diagram in the ODPM SEA Practical Guide²⁵ was applied to Wessex Water's Draft WRMP24 (and reconfirmed for the Revised Draft WRMP24) and is presented in Figure 1.2 with the boxes and arrows highlighted describing the provisions and route through the flow chart that is applicable to the WRMP24.

²² Office of the Deputy Prime Minister (ODPM), Scottish Executive, Welsh Assembly Government and Department of the Environment Northern Ireland (2005) *A Practical Guide to the SEA Directive and European Commission (2001) Assessment of plans and projects significantly affecting Natura 2000 sites* and Welsh Government (2015) *Strategic Environmental Assessment (SEA) in Wales*

²³ EA, OfWAT and NRW (2023) *Water Resource Planning Guidance [online]*. Available at: <https://www.gov.uk/government/publications/water-resources-planning-guideline/water-resources-planning-guideline>

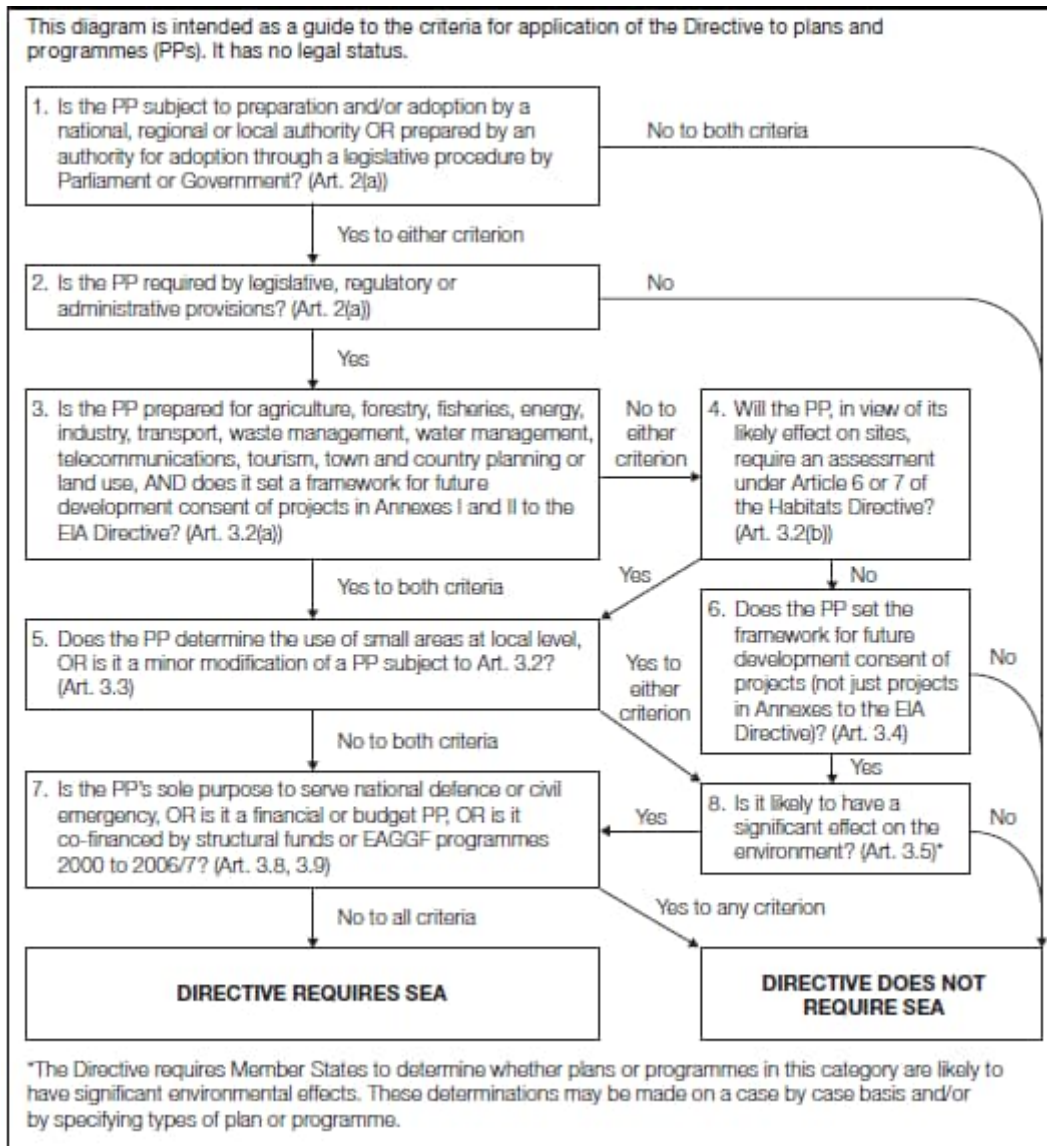
²⁴ UKWIR (2021) *Environmental Assessment Guidance for Water Resources Management Plans and Drought Plans*. Report Ref. No. 21/WR/02/15

²⁵ Office of the Deputy Prime Minister (2005) *A Practical Guide to the Strategic Environmental Assessment Directive*

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/7657/practicalguidesea.pdf

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Figure 1.2 SEA Screening of Wessex Water's WRMP24



1.3.9 Considering the performance of the WRMP24 against the criteria in Figure 1.2 in turn and the resultant Y/N response:

- Criteria 1: Yes, the draft WRMP24 is a plan being prepared for adoption by Wessex Water, which in the terms of the SEA Directive, and reflecting EC guidance and case law, has an equivalence to a public authority.
- Criteria 2: Yes, the draft WRMP24 is a plan required by legislative, regulatory or administrative provisions.
- Criteria 3: No, the draft WRMP24 is a plan being prepared for the purpose of water management; however, does not set the framework for future development consent of projects in Annex I and II of the EIA Directive.
- Criteria 4: Yes, the draft WRMP24 is a plan subject to an assessment under Article 6 or 7 of the Habitats Directive.

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- Criteria 5: No, the draft WRMP24 is not a plan for a small area at a local level or represents a minor change to an existing plan or programme.
- Criteria 7: No, the draft WRMP24 is a plan that is not related to national defence or civil emergency, or is a financial or budget plan, or is it co-financed by structural funds or EAGGF programmes 2000 to 2006/7.

1.3.10 Against the above criteria it has been concluded that the Draft and Revised Draft WRMP24 should be screened in for assessment, and Wessex Water's dWRMP24s will be subject to SEA. SEA is required based on the scope of the potential effects that could arise, particularly given the number and area covered by European designated conservation sites in the operational area covered by the WRMP (see Figure 3.1). In this context, the purpose of the SEA of the WRMP24 is to:

- identify the potentially significant environmental effects of the plan in terms of the water resource management options being considered;
- help identify appropriate measures to avoid, reduce or manage adverse effects and to enhance beneficial effects associated with the implementation of the plan wherever possible;
- give the statutory SEA bodies, stakeholders and the wider public the ability to see and comment upon the effects that the plan may have on them, and encourage them to make responses and suggest improvements to the plan; and
- inform the selection of water resource management options to be taken forward into the final version of the WRMP24.

1.3.11 The SEA has sought to identify, describe and assess the likely significant effects arising from the following aspects of the WRMP24:

- the feasible water resource options;
- the preferred water resources options;
- the preferred programme of options selected to comprise the preferred plan to address the supply demand deficit;
- any alternative plans proposed to address the supply demand deficit;
- any cumulative, secondary and/or synergistic effects of implementing the WRMP24.

1.3.12 Where relevant, any assessment work that has already been completed e.g., as part of the RAPID²⁶ gated submission process for the SROs, this has been used to inform the assessments of the options as they are presented.

²⁶ Regulators Alliance for Progressing Infrastructure Development (RAPID) was established in 2019 to "help accelerate the development of new water infrastructure and design future regulatory frameworks. The joint team is made up of the 3 water regulators Ofwat, Environment Agency and Drinking Water Inspectorate". Available online <https://www.ofwat.gov.uk/regulated-companies/rapid/3/> [Accessed January 2022]

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Stages of Strategic Environmental Assessment

1.3.13 SEA comprises five key stages:

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

1.3.14 Stage A of the SEA of the WRMP24 led to the production of the WRMP24 SEA Scoping Report. The scoping stage itself comprised five tasks that are listed below:

- i. Review of other relevant policies, plans, programmes and strategies (hereafter referred to as 'plans and programmes').
- ii. Collation and analysis of baseline information.
- iii. Identification of key sustainability issues.
- iv. Development of the assessment framework.
- v. Consultation on the scope of the SEA.

1.3.15 Information collected and analysed (as part of tasks i and ii) covers Wessex Water's operational area. The Scoping Report set out the proposed framework for assessing the likely significant environmental effects of the WRMP24. It was issued for scoping consultation for 5 weeks from 4th April to 10th May 2022. The representations received on the Scoping Report and how they have been taken into account in the subsequent assessment and Environmental Report are presented in Appendix B.

1.3.16 Following consultation, and amendment as appropriate, the assessment framework has been used for assessing the likely significant effects (including cumulative effects) of the water resource options contained in the WRMP24 and any reasonable alternatives (Stage B).

1.3.17 These assessments are presented in this Environmental Report (in a form to meet the requirements of Schedule 2 of the SEA Regulations) which has been completed to accompany the Draft (and the Revised Draft) WRMP24 (Stage C).

1.3.18 The Draft WRMP24 and accompanying documents including the Environmental Report were submitted to the Secretary of State for Environment, Food and Rural Affairs, for a request for publication. Following direction, Wessex Water published the documents for consultation from 28th November to 20th February (Stage D).

1.3.19 Following consultation, Wessex Water has prepared a Statement of Response to the representations received. It has also completed further work reflecting revisions to the drought resilience and demand management expectations which has led to amendments to the Draft WRMP24. A Revised Draft WRMP24 has been completed and given the changes has also been subject to further environmental assessment. The findings are

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presented in this Environmental Report. The Revised Draft WRMP24 and accompanying technical documents including the Environmental Report will be sent to the Secretary of State for Environment, Food and Rural Affairs. Following direction, the final WRMP24 will be published and implemented accordingly. In conjunction with publishing the final WRMP24, a Post Adoption Statement will also be issued (to meet the requirements of SEA regulation 16 (4)). This will set out the results of the consultation and SEA processes and the extent to which the findings of the SEA have been accommodated in the final plan.

- 1.3.20 The SEA requires monitoring of any resulting environmental effects of the WRMP24 (Stage E).

1.4 Habitats Regulations Assessment

- 1.4.1 Regulations 63 and 64 of The Conservation of Habitats and Species Regulations (2017) (the 'Habitats Regulations') transpose the provisions of Articles 6(3) and 6(4) of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the 'Habitats Directive') as they relate to plans or projects in England and Wales. Regulation 63 states that if a plan or project is "*(a) is likely to have a significant effect on a European site²⁷ or a European offshore marine site²⁸ (either alone or in combination with other plans or projects); and (b) is not directly connected with or necessary to the management of the site*" then the competent authority must "*...make an appropriate assessment of the implications for the site in view of that site's conservation objectives*" before the giving consent or authorisation (etc.).
- 1.4.2 The plan or project can only be given effect if it can be concluded (following an 'appropriate assessment') that it "*...will not adversely affect the integrity*" of a site, unless the provisions of Regulation 64 are met.
- 1.4.3 The process by which Regulation 63 (and, if applicable, Regulation 64) is met is known as Habitats Regulation Assessment (HRA)²⁹. An HRA determines whether there will be any 'likely significant effects' on any European site as a result of a plan's implementation (either on its own or 'in combination' with other plans or projects)³⁰ and, if so, whether there will be any 'adverse effects on site integrity'³¹.

²⁷ Strictly, 'European sites' are: any Special Area of Conservation (SAC) from the point at which the European Commission and the UK Government agreed the site as a 'Site of Community Importance' (SCI) (if this was before 31 Jan 2020); any classified Special Protection Area (SPA); and any candidate SAC (cSAC). However, the term is also commonly used when referring to potential SPAs (pSPAs), to which the provisions of Article 4(4) of Directive 2009/147/EC (the 'new wild birds directive') apply; and to possible SACs (pSACs) and listed Ramsar Sites. "European site" is therefore used in this proposal in its broadest sense, as an umbrella term for all of the above designated sites.

²⁸ 'European offshore marine sites' are defined by Regulation 18 of *The Conservation of Offshore Marine Habitats and Species Regulations 2017*; these regulations cover waters (and hence sites) over 12 nautical miles from the coast.

²⁹ The term 'Appropriate Assessment' has been historically used to describe the process of assessment; however, the process is now more accurately termed 'HRA', with the term 'Appropriate Assessment' limited to the specific stage within the process.

³⁰ Also referred to as the 'test of significance'.

³¹ Also referred to as the 'integrity test'.

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- 1.4.4 Water resource plans (whether WRMPs or Regional Plans) are not explicitly included within this legislation, although the regulator guidance³² requires that it should extend to the WRMP if the preferred plan “*would be likely to have a significant effect on a European site (either alone or in combination with other plans or projects)*”. The Habitats Regulations require every Competent Authority, in the exercise of any of its functions, to have regard to the requirements of the Habitats Directive. The water companies have a statutory duty to prepare WRMP24 and are therefore the Competent Authority for an HRA.
- 1.4.5 A HRA³³ was undertaken for the Draft WRMP24 and this has been updated for the Revised Draft WRMP24 to ensure that the preferred plan has been assessed in accordance with Regulation 63 of the Habitats Regulations. Whilst the HRAs has been undertaken and reported separately from the SEAs, its findings have been used as appropriate to inform the findings of this SEA, notably against the biodiversity, fauna and flora topic.

1.5 Water Framework Directive Assessment

- 1.5.1 The Water Framework Directive³⁴ (WFD) has been enacted into UK legislation as the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 in England and Wales.
- 1.5.2 The WFD sets a default objective for all rivers, lakes, estuaries, groundwater and coastal water bodies to achieve ‘good’ status or potential by 2027 at the latest. The current (baseline) status (e.g., 2015 classification), and the measures required to achieve the 2027 status objective, are set out for each water body in the relevant River Basin Management Plans (RBMPs), prepared by the EA and NRW every six years. The current, updated RBMPs were published in October 2022.
- 1.5.3 Wessex Water (for the WRMP24) must be able to demonstrate that the plan will not cause a deterioration in respect of these baseline conditions. Furthermore, for those water bodies that are not currently attaining good status, Wessex Water must be able to confirm that WRMP24 would not preclude the delivery of measures to facilitate the improvements needed to attain good status.
- 1.5.4 A separate WFD assessment³⁵ has been undertaken for the Draft WRMP24 to provide the evidence base to respond to these requirements. The WFD assessment has been updated for the Revised Draft WRMP24 and, where appropriate, the findings have been used to inform this SEA, notably against the water quality topic.

³² EA, Ofwat and NRW (2023) *Water Resource Planning Guidance (WRPG)* [online]. Available at: [Water resources planning guideline - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/115444/water-resources-planning-guideline-gov-uk.pdf) [Accessed August 2023].

³³ WSP Environment & Infrastructure Solutions UK Limited (formerly known as Wood Environment & Infrastructure Solutions UK Limited) (2022) *Habitats Regulations Assessment of the Water Resource Management Plan 2024*. Available at: [wrmp24-habitats-regulations-assessment.pdf \(ytlukltd.co.uk\)](https://www.ytlukltd.co.uk/wp-content/uploads/2022/08/wrmp24-habitats-regulations-assessment.pdf) [Accessed August 2023]

³⁴ European Union (2000) Directive 2000/60/EC of the European Parliament and of the Council. Following the UK's exit from the European Union on 31.12.20, the Directive no longer applies to the UK.

³⁵ Wood Group UK Limited (2022) *Wessex Water WRMP24 Water Framework Directive (WFD) Assessment*. Available at: [wrmp24-water-framework-directive-assessment.pdf \(ytlukltd.co.uk\)](https://www.ytlukltd.co.uk/wp-content/uploads/2022/08/wrmp24-water-framework-directive-assessment.pdf) [Accessed August 2023]

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1.6 Biodiversity Net Gain and Natural Capital

- 1.6.1 Biodiversity Net Gain (BNG) is an approach to the development of land and marine management that aims to leave biodiversity in a measurably better condition than prior to development. BNG seeks to provide a means of quantifying losses or gains in biodiversity value brought about by changes in land use, when designed and delivered well, BNG can secure benefits for nature, people and places, and for the economy³⁶.
- 1.6.2 Natural Capital (NC) studies key components of nature which are essential for the long-term provision of benefits on which society relies. These components can have a direct or indirect value to people.
- 1.6.3 The Water Resources Planning Guideline (WRPG)³⁷ states that water companies are required to ensure their WRMP delivers biodiversity net gain where appropriate, and uses a proportionate natural capital approach. Additionally, the EA and NRW have published separate supplementary guidance on Environment and Society in decision-making^{38,39}, which provides more detail about the expectation for NCA or ecosystem resilience in England and Wales respectively, and how a Natural Capital Assessment (NCA) and ecosystem resilience can support decision-making.
- 1.6.4 A separate BNG and NCA has been undertaken of the Draft WRMP24 to address these requirements. Both the BNG and NCA have been updated to reflect Wessex Water's Revised Draft WRMP24 preferred plan and, where appropriate, the findings have been used to inform this SEA, notably against the biodiversity, flora and fauna topic.

1.7 Environmental Report Structure

- 1.1.1 The remainder of this Environmental Report is structured as follows:
- Section 2: Review of Plans and Programmes - Provides an overview of the review of those plans and programmes relevant to WRMP24 and the SEA that is contained at Appendix C;
 - Section 3: Baseline Analysis - Presents an overview of the baseline analysis and identifies the key issues relevant to WRMP24 and the SEA;
 - Section 4: Approach to the Assessment - Outlines the revised approach to the SEA of the Revised Draft WRMP including the assessment framework comprising assessment objectives and guide questions, categorisation of effects, matrices and definitions of significance/thresholds (Appendix D);
 - Section 5: Assessment of the Feasible Options - Presents the findings of the assessment of the likely significant effects of the feasible options considered during

³⁶ Natural England (2021) *Biodiversity Net Gain – more than just a number*. Available online: <https://naturalengland.blog.gov.uk/2021/09/21/biodiversity-net-gain-more-than-just-a-number/>

³⁷ EA, Ofwat and NRW (2023) *Water Resource Planning Guidance (WRPG)* [online]. Available at: [Water resources planning guideline - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/1144441/water-resources-planning-guideline-gov-uk-2023.pdf) [Accessed August 2023].

³⁸ EA (2021) *WRPG 2024 supplementary guidance – Environment and society in decision-making*. Published 24/03/2021

³⁹ NRW (2021) *WRPG 2024 supplementary guidance – Environment and Society in decision-making (Wales)*. Published 07/04/2021

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the preparation of the Draft WRMP24 and the Revised Draft WRMP24 (detailed assessment matrices are presented in Appendix E);

- Section 6: Assessment of the Revised Draft WRMP - Presents the findings of the assessment of the revised preferred options and preferred programme of options that comprise the Revised Draft WRMP24 and any reasonable alternatives, including consideration of cumulative effects and mitigation (with detailed assessment matrices for options presented in Appendix F);
- Section 7: Next Steps and Proposals for Monitoring - Details the next steps in the SEA process and presents views on how the environmental effects of the WRMP24 will be monitored.

1.1.2 The report also contains the following appendices:

- Appendix A: Quality Assurance Checklist.
- Appendix B: Schedule of Consultation Responses.
- Appendix C: Review of Plans and Programmes.
- Appendix D: Definitions of Significance.
- Appendix E: Feasible Options Assessment
- Appendix F: Revised Preferred Options Assessment.

2. Review of Plans and Programmes

2.1 Introduction

- 2.1.1 The SEA Regulations require a report containing “*an outline of the contents, main objectives of the plan or programme and relationship with other relevant plans and programmes*” (Schedule 2(1)) as well as “*The environmental protection objectives, established at international (European) 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*” (Schedule 2(5)).
- 2.1.2 One of the first steps in undertaking the SEA of the Wessex Water WRMP24 is therefore to identify and review other relevant plans and programmes which could influence the plan. These may be plans and programmes at an international/European, national, regional or sub-regional level, commensurate with the scope of the WRMP24. The review aims to identify the relationships between the WRMP24 and these other documents i.e. how the WRMP24 could be affected by the other plans’ and programmes’ aims, objectives and/or targets, or how it could contribute to the achievement of their environmental and sustainability objectives. It is also a valuable source of information to support the completion of the social, economic and environmental baseline analysis and to determine the key issues for the WRMP24 and SEA (see Section 3).
- 2.1.3 The completed review of plans and programmes is used to provide the policy context for the subsequent assessment process and helps to inform the development of objectives that comprise the assessment framework (see Section 4).

2.2 Overview

- 2.2.1 Over 100 international/European, national, regional/sub-regional and local level plans and programmes have been reviewed in preparing this Scoping Report. These are listed in Table 2.1, with the results of the review provided in Appendix B.

Table 2.1 Plans and Programmes Examined for the SEA of the WRMP24

Plan / Programme
International / European Plans and Programmes
Conservation of Migratory Species (CMS) (1979) The Bonn Convention on the Conservation of Migratory Species of Wild Animals
Council of Europe (1979) The Convention on the Conservation of European Wildlife and Natural Habitats (The Bern Convention)
Council of Europe (1985) The Granada Convention for the Protection of the Architectural Heritage of Europe
Council of Europe (1992) Convention on the Protection of Archaeological Heritage (The Valetta Convention)
Council of Europe (2000), European Landscape Convention (The Florence Convention) (became binding March 2007)
Council of Europe (2003) European Soils Charter
European Commission (1991) The Nitrates Directive 91/676/EEC

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Plan / Programme

European Commission (1991) Urban Waste Water Treatment Directive 1991/271/EEC
 European Commission (1992) The Habitats Directive 1992/43/EEC
 European Commission (1998) Drinking Water Directive 1998/83/EC
 European Commission (1999) Directive on the Landfill of Waste 99/31/EC
 European Commission (2000) The Water Framework Directive 2000/60/EC
 European Commission (2001) Directive on the Assessment of the Effects of Certain Plans and Programmes on the Environment (The SEA Directive) 2001/42/EC
 European Commission (2002) Directive on the Energy Performance of Buildings 2002/91/EC
 European Commission (2002) The Environment Noise Directive 2002/49/EC
 European Commission (2004) Environmental Liability Directive 2004/35/EC
 European Commission (2005) Thematic Strategy on Air Pollution
 European Commission (2006) The Bathing Waters Directive 2006/7/EC
 European Commission (2006) 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
 European Commission (2006) Directive on the protection of groundwater against pollution and deterioration 2006/118/EC
 European Commission (2006) Fresh Water Fish Directive 2006/44/EC
 European Commission (2006) Mining Waste Directive 2006/21/EC
 European Commission (2006) Thematic Strategy for Soil Protection
 European Commission (2007) The Eel Directive 2007/1100/EC
 European Commission (2007) Floods Directive 2007/60/EC
 European Commission (2008) Ambient Air Quality and Cleaner Air for Europe Directive 2008/50/EC and Air Quality Framework Fourth Daughter Directive 2004/107/EC and previous directives (96/62/EC; 99/30/EC; 2000/69/EC & 2002/3/EC)
 European Commission (2008) Directive on Waste (Directive 75/442/EEC, 2006/12/EC 2008/98/EC as amended)
 European Commission (2008) Environmental Quality Standards Directive 2008/105/EC
 European Commission (2008) Marine Strategy Framework Directive 2008/56/EC
 European Commission (2009) Directive on the Conservation of Wild Birds 2009/147/EC (codified version of Council Directive 79/409/EEC as amended)
 European Commission (2009) Promotion of the use of energy from renewable sources Directive 2009/28/EC
 European Commission (2010) Energy 2020 - A Strategy for Competitive, Sustainable and Secure Energy
 European Commission (2010) Europe 2020 - A Strategy for Smart, Sustainable and Inclusive Growth
 European Commission (2010) Industrial Emissions Directive (integrated pollution prevention and control) 2010/75/EU
 European Commission (2011) Directives on Environmental Impact Assessment (Codified Directive 2011/92/EU and Revised Directive 2014/52/EU)
 European Commission (2011) A Resource- Efficient Europe- Flagship Initiative Under the Europe 2020 Strategy, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions (COM 2011/21)
 European Commission (2011) A Roadmap for Moving to a Competitive Low Carbon Economy in 2050
 European Commission (2012) A Blueprint to Safeguard Europe's Water Resources
 European Commission (2012) Energy Efficiency Directive 2012/27/EU as amended by Directive (EU) 2018/2002
 European Commission (2013) Towards Social Investment for Growth and Cohesion 2014-2020
 European Commission (2014) The EU Regulation on invasive alien (non-native) species 1143/2014/EU
 European Commission (2014) A Policy Framework for Climate and Energy in the Period from 2020 to 2030
 European Commission (2015) 'Closing the loop - An EU Action Plan for the Circular Economy' policy package
 European Commission (2016) National Emissions reduction Commitments (NEC) Directive 2016/2284/EU
 European Commission (2020) Biodiversity strategy for 2030
 European Commission (2022) Eighth Environmental Action Programme
 European Commission (2021) EU strategy on adaptation to climate change
 ICOMOS (2011) Guidance on Heritage Impact Assessments for Cultural World Heritage Properties
 IUCN (2013) World Heritage Advice Note: Environmental Assessment
 UNEP (1973) Convention on International Trade in Endangered Species of Wild Fauna and Flora
 UNESCO (1971) Ramsar Convention on Wetlands of International Importance
 UNESCO (1972) Convention Concerning the Protection of the World Cultural and Natural Heritage.

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Plan / Programme

UNESCO (2001) Convention on the Protection of Underwater Cultural Heritage
 United Nations (1992) Convention on Biological Diversity (The Rio Convention)
 United Nations (1997) The Kyoto Protocol to the UN Framework Convention on Climate Change
 United Nations Economic Commission for Europe (1998), Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (The Aarhus Convention)
 United Nations (2002) The World Summit on Sustainable Development
 United Nations (2016) The Paris Agreement
 United Nations Framework Convention on Climate Change (UNFCCC) (2011) The Cancun Agreements
 World Commission on Environment and Development (1987) Our Common Future (The Brundtland Report)
 World Health Organisation (2004) Children's Environment and Health Action Plan for Europe

National Plans and Programmes

BEIS (2011) National Policy Statements for Energy Infrastructure
 BEIS (2013) UK Renewable Energy Roadmap
 BEIS (2015) Future Electricity Networks
 BEIS (2020) Energy white paper: Powering our net zero future
 BEIS (2021) Heat and buildings strategy
 BEIS (2021) Net Zero Strategy: Build Back Greener
 Canal & River Trust (2015) Living Waterways Transform Places & Enrich Lives: Our 10 Year Strategy
 Canal and River Trust (2015) Water Resources Strategy 2015 – 2020
 Centre for Environment Fisheries and Aquaculture Science and Natural Resources Wales (2021) Assessment of Salmon Stocks and Fisheries in England and Wales 2020
 Department for Culture, Media and Sport (DCMS) (2001) The Historic Environment – A Force for the Future
 DCMS and Welsh Government (2007) Heritage Protection for the 21st Century
 DCMS (2013) Scheduled Monuments & Nationally Important but Non-Scheduled Monuments
 DCMS (2016) The Culture White Paper
 Defra (2004) Rural Strategy
 Defra (2005) Making space for water: taking forward a new government strategy for flood and coastal erosion risk management in England
 Defra (2006) Shoreline Management Plan Guidance
 Defra (2007) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland
 Defra (2009) Safeguarding our Soils – A Strategy for England
 Defra, Department of the Environment (NI), Scottish Government and Welsh Assembly Government (2010) Air Pollution: Action in a Changing Climate
 Defra (2010) Making Space for Nature: A Review of England's Wildlife Sites and Ecological Network
 Defra (2011) UK National Ecosystem Assessment and Defra (2014), UK National Ecosystems Assessment Follow on, Synthesis of Key Findings
 Defra (2011) Water for Life - Water White Paper
 Defra (2011) Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services
 Defra (2011) Mainstreaming Sustainable Development
 Defra (2011) The Natural Choice: Securing the Value of Nature
 Defra (2011) Natural Environment White Paper
 Defra (2012) National Policy Statement for Waste Water
 Defra (2013) The National Adaptation Programme – Making the Country Resilient to a Changing Climate
 Defra (2013) What nature can do for you
 Defra (2015) The government's response to the Natural Capital Committee's Third State of Natural Capital report
 Defra (2015) The Great Britain Invasive Non-native Species Strategy
 Defra (2016) Guiding principles for water resources planning for water companies operating wholly or mainly in England
 Defra (2017) Air Quality Plan for Nitrogen Dioxide (NO₂) in UK
 Defra (2018) The National Adaptation Programme and the Third Strategy for Climate Adaptation Reporting
 Defra (2020) Drought Plan Direction 2020

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Plan / Programme

Defra (2020) National food strategy for England
 Defra (2020) Natural Capital Committee's Seventh Annual Report
 Defra (2020) The Path to Sustainable Farming: An Agricultural Transition Plan 2021 to 2024
 Defra (2020) Water abstraction plan: Environment
 Defra (2021) Waste Management Plan for England
 Defra (2023) Environmental Improvement Plan 2023
 Defra and the Environment Agency (2018) Resources and Waste Strategy for England
 Defra, Environment Agency, Natural England, Forestry Commission England (2016) Creating a great place for living
 Defra and the Law Commission (2018) Draft National Policy Statement for Water Resources Infrastructure
 Defra, Scottish Government, Welsh Government (2015) The Great Britain Invasive Non-native Species Strategy
 Defra and Welsh Government (2014), River Basin Planning Guidance
 Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2014) National Planning Policy for Waste
 Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2015) Renewable and Low Carbon Energy
 Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2015) Strategic environmental assessment and sustainability appraisal
 Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local (2021) National Design Guide
 Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local (2021) National Planning Policy Framework 2021
 Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local (various) Planning Practice Guidance
 Department for Transport (2022) UK Electric Vehicle Infrastructure Strategy
 Environment Agency (2004) Catchment Flood Management Plans: Guidelines – Volume 1 Policy
 Environment Agency (2007) Soil: A Precious Resource
 Environment Agency (2008) Better Sea Trout and Salmon Fisheries: Our Strategy for 2008-2021
 Environment Agency (2009) Water for People and the Environment - Water Resources Strategy for England and Wales
 Environment Agency (2010) Water Resources Action Plan for England and Wales
 Environment Agency (2013) Areas of Water Stress: Final Classification
 Environment Agency (2013) Climate Change Approaches in Water Resources Planning: New Methods
 Environment Agency (2013) Managing Water Abstraction
 Environment Agency (2017) Drought response: our framework for England
 Environment Agency (2017) Groundwater Protection Technical Guidance
 Environment Agency (2018) The Environment Agency's Approach to Groundwater Protection
 Environment Agency (2020) EA2025 creating a better place
 Environment Agency (2020) Meeting our future water needs: a national framework for water resources
 Environment Agency (2020) National Flood and Coastal Erosion Risk Management Strategy for England
 Environment Agency (2020) Water Company Drought Plan guideline
 Environment Agency (2022) Water resources planning guideline supplementary guidance – Environment and society in decision-making
 Environment Agency (undated) Hydroecology: Integration for modern regulation
 Environment Agency (undated) Restoring Sustainable Abstraction Programme
 Environment Agency (undated) WFD River Basin Characterisation Project: Technical Assessment Method - River abstraction and flow regulation.
 Environment Agency, Natural Resources Wales and The Water Services Regulation Authority (2023) Water Resources Planning Guideline
 English Heritage (2008) Climate Change and the Historic Environment
 English Heritage (2010) Heritage at Risk
 Historic England (2015) The Setting of Heritage Assets, Historic Environment Good Practice Advice in Planning 3
 Historic England (2016) Historic England Advice Note 8: Sustainability Appraisal and Strategic Environmental Assessment

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Plan / Programme

The Historic Environment Group (2018) Historic Environment and Climate Change Sector Adaption Plan
 HM Government (1975) Salmon and Freshwater Fisheries Act, 1975
 HM Government (1975) Reservoirs Act
 HM Government (1979) Ancient Monuments and Archaeological Areas Act 1979
 HM Government (1981) Wildlife and Countryside Act, 1981
 HM Government (1990) Environmental Protection Act
 HM Government (1990) Planning (Listed Buildings and Conservation Areas) Act 1990
 HM Government (1990) Town and Country Planning Act 1990
 HM Government (1991 and 1994) Land Drainage Act
 HM Government (1991) Water Industry Act 1991 (as amended by the Flood and Water Management Act 2010)
 HM Government (1991) Water Resources Act 1991
 HM Government (1994) The Conservation (Natural Habitats, &c.) Regulations 1994
 HM Government (1994) UK Biodiversity Action Plan
 HM Government (1994) Urban Waste Water Treatment (England and Wales) Regulations 1994
 HM Government (1995) Environment Act 1995
 HM Government (2000) The Countryside and Rights of Way (CROW) Act 2000
 HM Government (2002) The National Heritage Act 2002
 HM Government (2003) The Water Act 2003
 HM Government (2004) The Environmental Assessment of Plans and Programmes Regulations 2004
 HM Government (2005) Securing the Future: Delivering UK Sustainable Development Strategy
 HM Government (2006) Climate Change and Sustainable Energy Act 2006
 HM Government (2006) Natural Environment and Rural Communities Act 2006
 HM Government (2007) Water Resources Management Plan Regulations 2007
 HM Government (2008) The Climate Change Act 2008 and The Climate Change Act 2008 (2050 Target Amendment) Order 2019
 HM Government (2008) The Energy Act 2008
 HM Government (2008) Planning Act 2008
 HM Government (2009) The Eels (England and Wales) Regulations 2009 (as amended 2011)
 HM Government (2009) The Groundwater (England and Wales) Regulations 2009
 HM Government (2009) Marine and Coastal Access Act 2009
 HM Government (2009) Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009 SI 3104
 HM Government (2009) The UK Renewable Energy Strategy
 HM Government (2010) Flood and Water Management Act 2010
 HM Government (2011) Localism Act 2011
 HM Government (2011) UK Marine Policy Statement
 HM Government (2011) Water for Life: White Paper
 HM Government (2013) The Energy Act 2013
 HM Government (2014) Water Act 2014
 HM Government (2015) The Environmental Damage (Prevention and Remediation) (England) Regulations 2015
 HM Government (2015) Infrastructure Act 2015
 HM Government (2015) The Nitrate Pollution Prevention Regulations 2015
 HM Government (2015) Ozone-Depleting Substances Regulations 2015
 HM Government (2016) Environmental Permitting (England and Wales) Regulations 2016 (as amended 2018)
 HM Government (2017) Conservation of Habitats and Species Regulations 2017 (and the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019)
 HM Government (2017) The Water Environment (WFD) (England and Wales) Regulations 2017
 HM Government (2017, updated 2019) UK Clean Growth Strategy: Leading the way to a low carbon future
 HM Government (2018) A Green Future: Our 25 Year Plan to Improve the Environment
 HM Government (2018) The Water Supply (Water Quality) Regulations 2018
 HM Government (2019) the Invasive Alien species (Enforcement and Permitting) Order 2019
 HM Government (2020) The Agriculture Act 2020
 HM Government (2020) Energy White Paper: Powering our Net Zero Future
 HM Government (2021) The Environment Act
 HM Government (2021) Net Zero Strategy: Build Back Greener

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Plan / Programme

HM Government (2022) UK Climate Change Risk Assessment 2022
 HM Treasury (2016) National Infrastructure Delivery Plan
 JNCC and Defra (2012) UK Post-2010 Biodiversity Framework
 National Infrastructure Commission (2018) Preparing for a Drier Future, England's Water Infrastructure Needs
 Natural England (2011) UK Geodiversity Action Plan
 Natural England (2016) 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 and the Environment Agency (2014) Protected Species and Development: Advice for Local Planning Authorities
 Ofwat (2016) Water 2020
 Ofwat (2017) Resilience in the Round
 UKCIP (2018) UK Climate Projections UKCP18
 UKTAG: Phase 3 Review of Environmental Standards
 Waterwise (2017) Water Efficiency Strategy for the UK
 Water UK (2016) Water Resources Long-term Planning Framework (2015 – 2065)

Regional Plans and Programmes

Water Company (various) Water Resources Management Plans
 Water Company (various) Drought Plans
 HM Government (2021) South West Inshore and South West Offshore Marine Plans

Sub-regional/ Local Plans and Programmes

AONB Management Units (various) AONB Management Plans
 Defra (Various) Eel Management Plans
 Environment Agency (various) Catchment Flood Management Plans
 Environment Agency (various) River Basin Management Plans
 Environment Agency (various) Salmon Action Plans
 Environment Agency (Various) Abstraction Licencing Strategies
 Local Biodiversity Action Plans (LBAPs), including Species and Habitats Action Plans (various)
 Local Planning Authority (various) Land Use Plans
 National Park Management Plans (various)
 Shoreline Management Plans (various)
 Natural England National Character Area (NCA) Profiles (various)
 Public Rights of Way Improvement Plans (ROWIPs)
 World Heritage Site Management Plans (various)
 Environment Agency (2016) Flood Risk Management Plans (various)

2.3 Policy Objectives Relevant to the Plan Assessment

2.3.1 The review of plans and programmes presented in Appendix C has identified a number of objectives and policy messages relevant to the Revised Draft WRMP24. Reflecting the topics identified in Schedule 2 of the SEA regulations, these objectives and messages are set out for the following topic areas:

- biodiversity;
- geology, land-use and soils;
- water;

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- air quality
- climate change;
- human environment (including population and human health);
- material assets and resource use;
- cultural heritage; and
- landscape.

2.3.2 The policy objectives and messages identified from the review of other plans and programmes are summarised in Table 2.2. It is important that the assessment takes these into account as this will help to highlight any areas where the Revised Draft WRMP24 will help or hinder the achievement of the objectives of the other plans. Only the key sources are included; however, it is acknowledged that many other plans and programmes could also be included. The relevance of the key objectives and policy measures to the assessment of the WRMP24 is also indicated in Table 2.2.

Table 2.2 Key Policy Objectives Identified in Other Plans and Programmes relevant to the Assessment of the WRMP24

Key Policy Objectives and Policy Messages	Key Sources	Relevant to the SEA of the WRMP?	Relevant SEA Objectives
Biodiversity			
Conservation and enhancement of the levels and variety of biodiversity, including designated sites, priority species and habitats	Bern Convention; Bonn Convention; Habitats Directive; Invasive Alien Species Regulation; Ramsar Convention on Wetlands; Birds Directive; EU Biodiversity Strategy to 2030; Marine Strategy Framework Directive; Biodiversity 2020; UK post 2010 Biodiversity Framework; Eel Regulations; Wildlife and Countryside Act; The Natural Environment and Rural Communities Act; UK Biodiversity Action Plan; Marine and Coastal Access Act; Conservation of Habitats & Species Regulations; Better Sea Trout and Salmon Fisheries; The Great Britain Invasive Non-native Species Strategy; A Green Future: Our 25 Year Plan to Improve the Environment; UK Marine Policy Statement; Countryside and Rights of Way Act; National Planning Policy Framework; Natural England's Conservation strategy for the 21 st Century; Protected Species and Development; Local Biodiversity Action Plans (BAP) including Species and Habitats Action Plans (various); Local Planning Authority Local Plans (various); AONB Management Plans; National Park Management Plans (various).	Yes	The policy objectives listed influenced the development of SEA objective 1.
Geology, Land Use and Soils,			
Protection and enhancement of soil quality, promoting sustainable patterns of land use and	Thematic Strategy for Soil Protection; National Planning Policy Framework; Soil: A Precious Resource; Local Planning Authority Local Plans (various); AONB Management Plans; National Park Management Plans (various).	Yes	The policy objectives listed influenced the development of SEA objective 2.

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Key Policy Objectives and Policy Messages	Key Sources	Relevant to the SEA of the WRMP?	Relevant SEA Objectives
protecting designated geological features			
Water			
Protection and enhancement of all water supplies and resources	Blueprint to Safeguard Europe's Water Resources; Bathing Waters Directives; Drinking Water Directive; Nitrates Directive; Urban Waste Water Directive; Water Framework Directive; Environmental Quality Standards Directive; Habitats Directive; the Wildlife & Countryside Act; the Conservation of Habitats & Species Regulations; Water Supply (Water Quality) Regulations; Restoring Sustainable Abstraction Programme; Climate Change Approaches in Water Resources Planning; Drought Response: Our Framework for England; Water Resources Planning guideline; Meeting our future water needs: a national framework for water resources; A Green Future: Our 25 Year Plan to Improve the Environment; National Planning Policy Framework; Water Resources Long-Term Planning Framework; River Basin Management Plans (various); Draft River Basin Management Plans (Various); Water Company Drought Plans (various); Water Company Water Resource Management Plans (various); Abstraction Licensing Strategies (various); Local Planning Authority Local Plans (various).	Yes	The policy objectives listed influenced the development of SEA objective 3.
Promoting the sustainable and efficient use of water	Blueprint to Safeguard Europe's Water Resources; Water Framework Directive; The Water Environment (WFD) (England and Wales) Regulations; Water for People and the Environment;; Restoring Sustainable Abstraction Programme; Environment Agency's Approach to Groundwater Protection; Meeting our future water needs: a national framework for water resources; Water Act;; A Green Future: Our 25 Year Plan to Improve the Environment; National Planning Policy Framework; River Basin Management Plans (various); Draft River Basin Management Plans (Various); Water Company Drought Plans (various); Water Company Water Resource Management Plans (various); Abstraction Licensing Strategies (various); Local Planning Authority Local Plans (various).	Yes	The policy objectives listed influenced the development of SEA objective 3.
Minimising flood risk and improving flood control infrastructure	Floods Directive; Water Framework Directive; Flood and Water Management Act; Shoreline Management Plan Guidance; National Flood and Coastal Erosion Risk Management Strategy for England; Flood and Water Management Act; National Planning Policy Framework; Shoreline Management Plans (various); Catchment Flood Management Plans (various); River Basin Management Plans (various); Draft River Basin Management Plans (Various); Catchment Flood Management Plans (various); Local Planning Authority Local Plans (various).	Yes	The policy objectives listed influenced the development of SEA objective 4.
Air Quality			
Ensuring air quality is maintained or enhanced and that emissions of air	Ambient Air Quality and Cleaner Air for Europe; Industrial Emissions Directive; Air Quality Strategy for England, Scotland, Wales and Northern Ireland; Air Quality Plan for Nitrogen	Yes	The policy objectives listed influenced the development of

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Key Policy Objectives and Policy Messages	Key Sources	Relevant to the SEA of the WRMP?	Relevant SEA Objectives
pollutants are kept to a minimum	Dioxide (NO ₂) in UK; National Planning Policy Framework; Local Planning Authority Local Plans (various).		SEA objective 5 and 6.
Climate Change			
Minimising emissions of greenhouse gases that cause climate change	Kyoto Protocol; Paris Agreement; Climate Change Act; Renewable Energy Roadmap; UK Sustainable Development Strategy; UK Renewable Energy Strategy; Energy White Paper; UK Clean Growth Strategy; UK Climate Change Risk Assessment; Local Planning Authority Local Plans (various).	Yes	The policy objectives listed influenced the development of SEA objective 5 and 6.
Minimising the effects of climate change on natural resources, inhabitants and the economy	The Environment Act; Strategy on Adaptation to Climate Change; UK Sustainable Development Strategy; National Flood and Coastal Erosion Risk Management Strategy for England; National Planning Policy Framework; The National Adaptation Programme and the Third Strategy for Climate Adaptation Reporting; Water Resources Management Plans (various); River Basin Management Plans (various); Draft River Basin Management Plans (Various); Shoreline Management Plans (various); Catchment Flood Management Plans (various); Local Planning Authority Local Plans (various).	Yes	The policy objectives listed influenced the development of SEA objective 7.
Human environment (including population and human health)			
Addressing deprivation and reducing inequality	World Summit on Sustainable Development; Europe 2020; Sustainable Development Strategy; National Planning Policy Framework; Local Planning Authority Local Plans (various).	Yes	The policy objectives listed influenced the development of SEA objective 8.
Promoting improvements to health and well-being	Aarhus Convention; Sustainable Development Strategy; World Summit on Sustainable Development; National Planning Policy Framework; Local Planning Authority Local Plans (various).	Yes	The policy objectives listed influenced the development of SEA objectives 8 and 9.
Providing high quality services, community facilities and social infrastructure that is accessible to all	National Planning Policy Framework; Local Planning Authority Local Plans (various).	No	The policy objectives listed influenced the development of SEA objectives 8 and 9.
Achieving sustainable economic growth and promoting key sectors in the local economy	World Summit on Sustainable Development; UK Marine Policy Statement; Sustainable Development Strategy; National Planning Policy Framework; Local Planning Authority Local Plans (various).	Yes	The policy objectives listed influenced the development of SEA objective 8.

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Key Policy Objectives and Policy Messages	Key Sources	Relevant to the SEA of the WRMP?	Relevant SEA Objectives
Improving and expanding a sustainable tourism economy	National Planning Policy Framework; Local Planning Authority Local Plans (various); AONB Management Plans (various); National Park Management Plans (various). Local Planning Authority Local Plans (various).	Yes	The policy objectives listed influenced the development of SEA objective 8.
Maximising job opportunities for all and enhancing the quality of employment opportunities	National Planning Policy Framework; Local Planning Authority Local Plans (various).	Yes	The policy objectives listed influenced the development of SEA objective 8.
Minimising noise pollution	Environment Noise Directive; National Planning Policy Framework; Local Planning Authority Local Plans (various).	Yes	The policy objectives listed influenced the development of SEA objective 9.
Promoting sustainable transport	Sustainable Development Strategy; A Roadmap for Moving to a Competitive Low Carbon Economy in 2050; National Planning Policy Framework; Local Planning Authority Local Plans (various).	No	The policy objectives listed influenced the development of SEA objective 8.
Material Assets and Resource Use			
Minimising waste production, promoting re-use and recycling	Waste Framework Directive; Landfill of Waste Directive; Waste Management Plan for England; National Planning Policy for Waste; Local Planning Authority Local Plans (various).	Yes	The policy objectives listed influenced the development of SEA objective 11.
Promoting the most effective and efficient use of natural resources	World Summit on Sustainable Development; UK Sustainable Development Strategy; National Planning Policy for Waste; Local Planning Authority Local Plans (various).	Yes	The policy objectives listed influenced the development of SEA objectives 10 and 11.
Promoting the use of sustainable/renewable energy	Eighth Environmental Action Programme; A Roadmap for Moving to a Competitive Low Carbon Economy in 2050; Renewable Energy Strategy; Sustainable Development Strategy; UK Clean Growth Strategy; Climate Change Act; UK Renewable Energy Strategy; UK Renewable Energy Roadmap; UK Sustainable Development Strategy; Net Zero Strategy; Resources and Waste Strategy; Renewable and Low Carbon Energy; National Planning Policy Framework; Future Electricity Networks; Energy White Paper; Local Planning Authority Local Plans (various).	Yes	The policy objectives listed influenced the development of SEA objectives 10 and 11.
Promoting the use of sustainable design	Energy Efficiency Directive; A Roadmap for Moving to a Competitive Low Carbon Economy in 2050; Heat and Buildings	Yes	The policy objectives listed

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Key Policy Objectives and Policy Messages	Key Sources	Relevant to the SEA of the WRMP?	Relevant SEA Objectives
and construction and encouraging energy efficiency	Strategy; Renewable Energy Strategy; UK Sustainable Development Strategy; National Planning Policy Framework; Local Planning Authority Local Plans (various).		influenced the development of SEA objective 11.
Cultural Heritage			
Protecting and enhancing cultural heritage and archaeological sites	Ancient Monuments and Archaeological Areas Act; Planning (Listed Buildings and Conservation Areas) Act; National Planning Policy Framework the Setting of Heritage Assets; Historic England Advice Note 8; Local Planning Authority Local Plans (various).	Yes	The policy objectives listed influenced the development of SEA objective 12.
Landscape			
Protecting and enhancing the quality and distinctiveness of natural landscapes and environmental resources	European Landscape Convention; National Planning Policy Framework; AONB Management Plans (various); Local Planning Authority Local Plans (various); National Park Management Plans (various).	Yes	The policy objectives listed influenced the development of SEA objective 13.

3. Baseline Analysis

3.1 Introduction

- 3.1.1 The SEA Regulations require a report containing *'The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme'* (Schedule 2(2)), *'The environmental characteristics of areas likely to be significantly affected'* (Schedule 2(3)), and *'Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Council Directive 79/409/EEC on the conservation of wild birds and the Habitats Directive'* (Schedule 2(4)).
- 3.1.2 In this context, an essential part of the SEA scoping process is the identification of the current baseline conditions and their likely evolution. Only with a knowledge of existing conditions, and a consideration of their likely evolution, can the effects of the Revised Draft WRMP24 be identified and appraised and its subsequent success or otherwise be monitored. This is also useful in determining the key issues for each topic that should be taken forward in the SEA, through the SEA objectives and guide questions.
- 3.1.3 This section of the report identifies and characterises current environmental baseline conditions, along with how these are likely to change in the future. The analysis is presented for the following topics:
- biodiversity;
 - geology, land-use and soils;
 - water;
 - air quality
 - climate change;
 - human environment (including population and human health);
 - material assets and resource use;
 - cultural heritage; and
 - landscape.
- 3.1.4 The data has been drawn from a variety of sources, including a number of the plans and programmes reviewed as part of the SEA process (see Section 2 of this report and Appendix B). Where appropriate, figures are referenced in this overview. The key issues arising from the review of baseline conditions are summarised for each topic.

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3.2 Biodiversity

Baseline Characteristics

3.2.1 Biodiversity is defined as the variety of plants (flora) and animals (fauna) in an area, and their associated habitats. All ecological processes are the product of interactions between different groups of organisms and are dependent upon there being a range of these present. In this sense, biodiversity – the variety and variability of living organisms – ultimately underpins the functioning of all ecosystems and thereby the delivery of all ecosystem services (which are critical in: providing clean air and water, food and raw materials; helping to regulate the climate; and providing space for recreation and amenity). Protected sites are key in the protection of semi-natural habitats and species and can act as excellent examples of natural resource management. The importance of preserving biodiversity is recognised from an international to a local level.

Protected Sites

3.2.2 There are four categories of protected areas:

- Protected areas that are established through international agreements (including Ramsar Sites, which are wetlands of international importance designated under the Ramsar Convention which are afforded the same degree of protection as European sites).
- Protected areas that are established under European Union Directives or other European Initiatives (including Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) identified as making significant contribution to conserving designated habitats and species). These formally formed part of the 'Natura 2000' network of sites protected under the Habitats Directive (92/43/EEC) and now form part of the UK national site network following the UK's departure from the European Union.
- Protected areas that are established under national legislation (Sites of Special Scientific Interest (SSSIs) and National Nature Reserves)).
- Marine Conservation Zones (MCZ) are designated under the Marine and Coastal Access Act 2009 and protect nationally important marine habitats and species.

3.2.3 Important nature conservation sites (Ramsar sites, SPAs, SACs and candidate SACs, and SSSIs) across the Wessex Water supply area are shown in Figures 3.1 and 3.2. The number of protected areas in the Wessex Water supply area are summarised in Table 3.1.

Table 3.1 Designations within the Wessex Water Supply Area

Designated Site Classification	Number of Sites within Wessex Water supply area (wholly or partially)	Total Area (hectares) within Wessex Water supply area
Ramsar	5	12,763
Special Area of Conservation (SAC)	27	36,411

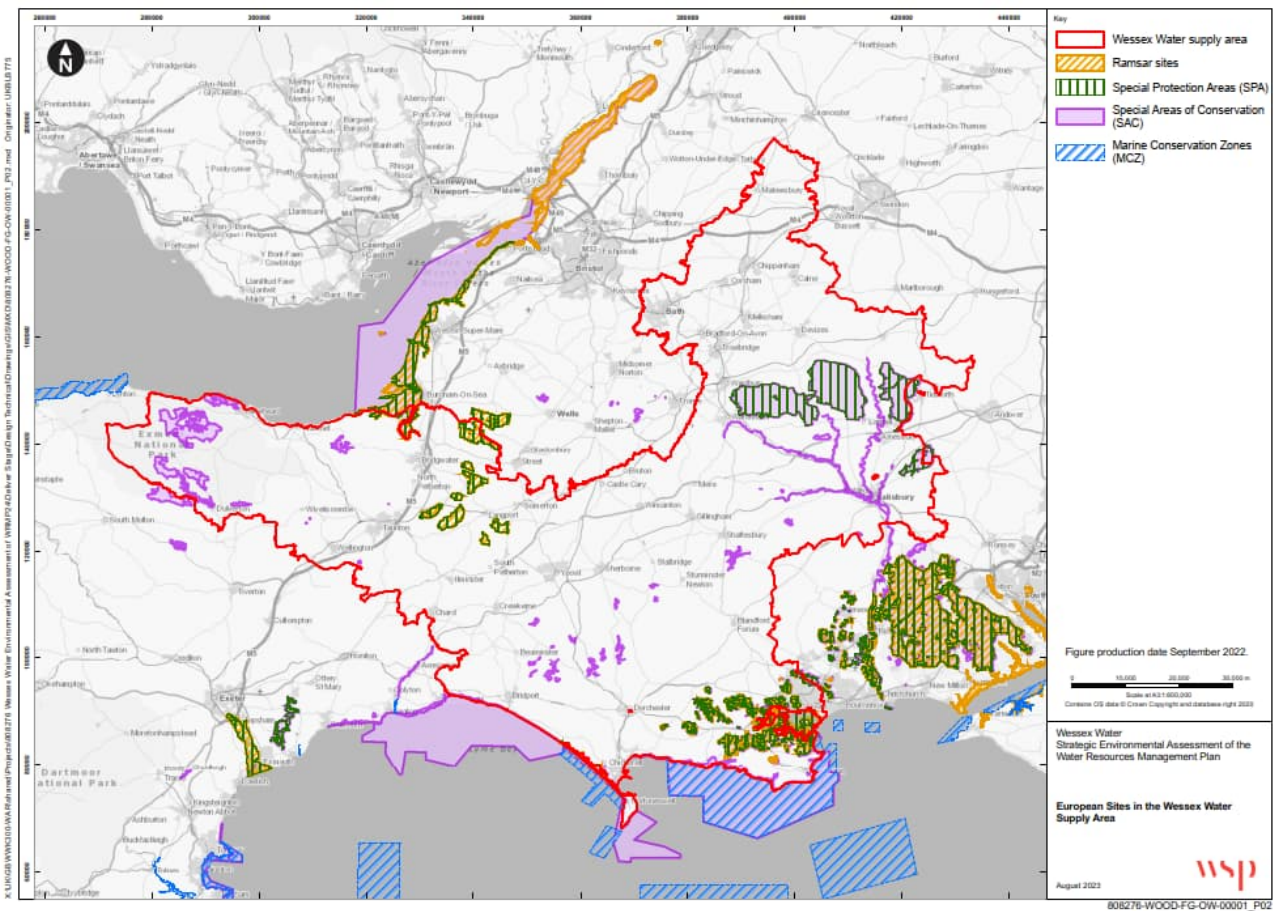
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Special Protection Areas (SPA)	7	33,333
Site of Special Scientific Interest (SSSI)	255	59,430
National Nature Reserve	26	5,178
Local Nature Reserve	59	510
Marine Conservation Zone (MCZ)	4	34,100*

Notes: * Total area of Marine Conservation Zones on the coastal boundary of the supply area.

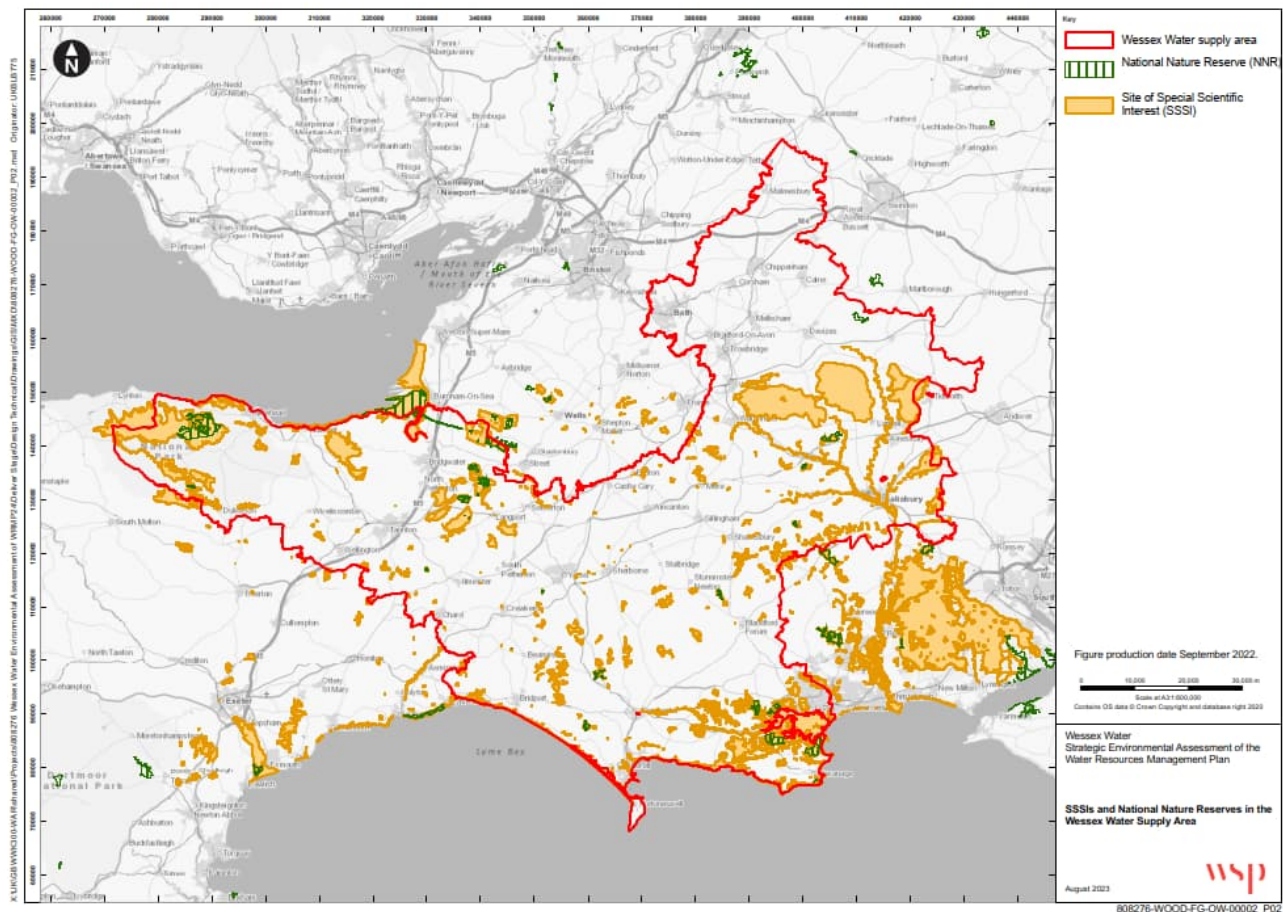
Source: Natural England Open Data GIS layers [Accessed in January 2022] and Joint Nature Conservation Committee (JNCC) interactive map. Available online: <https://jncc.gov.uk/mpa-mapper/> [Accessed 06/01/22]

Figure 3.1 European Sites that form part of the UK national site network in the Wessex Water Supply Area



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Figure 3.2 SSSIs and National Nature Reserves in the Wessex Water Supply Area



- 3.2.4 There are 5 Ramsar sites within the Wessex Water supply area totalling 12,763 ha (Figure 3.1). The two largest Ramsar sites are the Dorset Heathland Ramsar (an inland wetland containing numerous examples of wet heath and acid valley mire, habitats that are restricted to the Atlantic fringe of Europe) and the Somerset Levels and Moors Ramsar (an inland wetland consisting of wet grassland, peat bog, fen, and reedbed)⁴⁰.
- 3.2.5 There are 27 SACs (36,411 ha) and 7 SPAs (33,333 ha) within the Wessex Water supply area (Figure 3.1). The largest SPA and SAC in the supply area is the Salisbury Plain SPA/SAC totalling about 20,000 ha. This site contains the largest surviving semi-natural dry grassland in Europe⁴¹ and is the largest expanse of unimproved chalk downland in northwest Europe comprising a mosaic of eight main National Vegetation Classification Community types⁴². Some of the SPA/SAC sites within the supply area have marine components: Poole Harbour SPA; Severn Estuary SPA/SAC; Studland to Portland SAC; and Lyme Bay and Torbay SAC. Over half of the SACs and SPAs (18 SACs and 5 SPAs) contain water dependant features (e.g. ponds, watercourses, wetlands).

⁴⁰ Ramsar Sites Information Service (1999). Available online: <https://rsis.ramsar.org/ris/964> and <https://rsis.ramsar.org/ris/914> [Accessed 06/01/22]

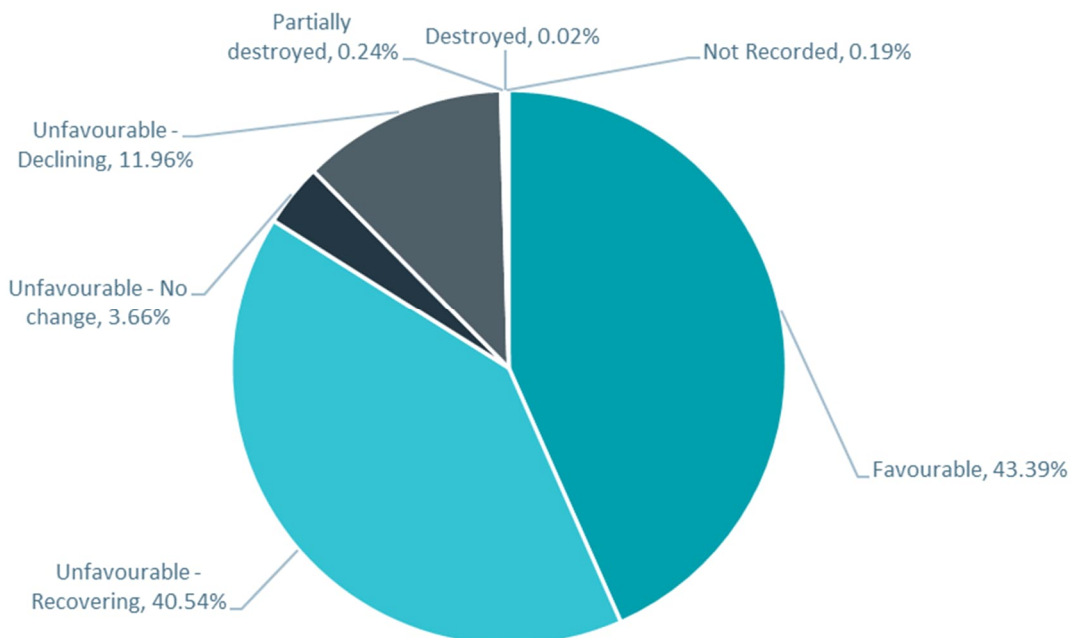
⁴¹ Natural England (2014). Available online: <http://publications.naturalengland.org.uk/publication/4786217489006592> European Site Conservation Objectives for Salisbury Plain SAC (UK0012683) [Accessed 06/01/22]

⁴² Natural England (2014). European Site Conservation Objectives for Salisbury Plain SPA (UK9011102). Available online: <http://publications.naturalengland.org.uk/publication/5745803545018368> [Accessed 06/01/22]

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- 3.2.6 There are 4 MCZs on the coastal boundary of the supply area: Purbeck Coast; Studland Bay; South of Portland; and Chesil Beach and Stennis Ledges (Figure 3.1)⁴³. Protected features in the MCZs include: intertidal or subtidal coarse sediment in all MCZs, high energy intertidal or circalittoral rock (all MCZs except Studland Bay MCZ), geological features (Portland Deep geological feature in South of Portland MCZ) and a range of marine species such as long snouted seahorse (Studland Bay MCZ), black seabream (Purbeck Coast) and native oyster (Chesil Beach and Stennis Ledges MCZ).
- 3.2.7 There are 255 SSSIs either within or partly within the Wessex Water supply area, totalling 59,430 ha (Figure 3.2). In January 2022, 43.4% of the SSSIs situated in the Environment Agency Wessex supply area (including the Wessex water supply area) were in 'favourable condition'. 40.5% were in 'unfavourable recovering' condition and 15.7% of the SSSIs were classified as being in 'unfavourable no change' and 'unfavourable declining' condition (Figure 3.3)⁴⁴. The latter has seen an increase in abundance of 5.9% when compared to April 2020: a trend which is supported by the decrease of 3.3% and 2.7% in 'favourable' and 'unfavourable recovering' sites over this period also.
- 3.2.8 There are 26 NNRs within the Wessex Water supply area (Figure 3.2). The largest NNR (Dunkery and Horner Wood NNR), which is located to the west of the supply area, contains a variety of habitats including high moorland with internationally important wet and dry heathland; steeply sloping combe sides with grassland and bracken and ancient woodland.

Figure 3.3 Condition of SSSIs within the Environment Agency Wessex Area



Source: <https://designatedsites.naturalengland.org.uk/> (Accessed 06/01/22)

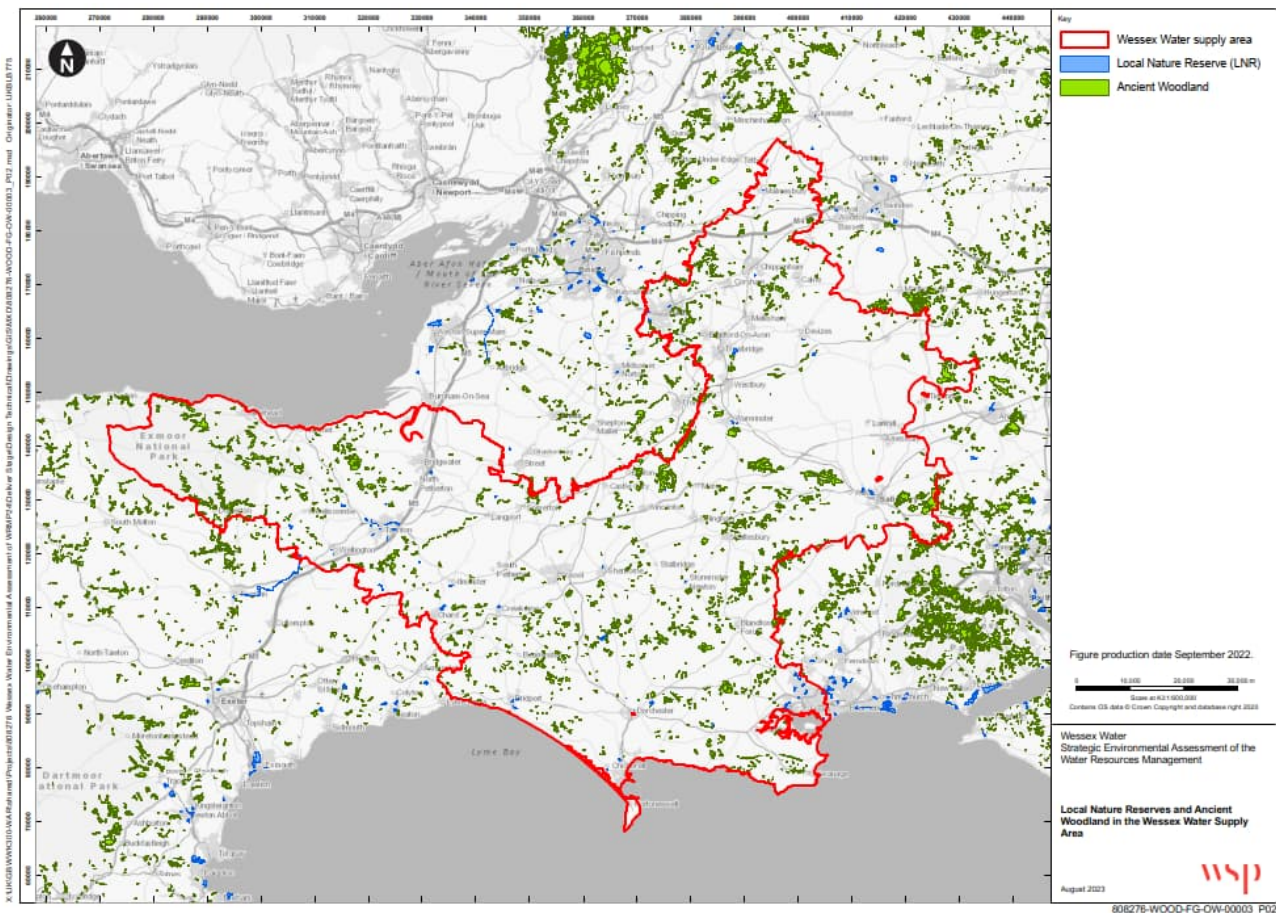
⁴³ Joint Nature Conservation Committee (JNCC) interactive map. Available online: <https://jncc.gov.uk/mpa-mapper/> [Accessed 06/01/22]

⁴⁴ Details of SSSIs condition searched on-line at <https://designatedsites.naturalengland.org.uk/> [Accessed 06/01/22]

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3.2.9 There are 59 Local Nature Reserves (LNR) within the Wessex Water supply area (Figure 3.4). These are areas with wildlife or geological features that are of special interest locally. There are numerous Areas of Ancient Woodland within the Wessex Water supply area (Figure 3.4). Ancient woodlands are areas that have contained woodland continuously since at least 1600 AD. They tend to be more ecologically diverse and of a higher nature conservation value than those developed recently, or where cover on the site has been intermittent. They are important habitats and often also have cultural importance.

Figure 3.4 Local Nature Reserves and Ancient Woodland in the Wessex Water Supply Area



3.2.10 The South West of England is well-known for its natural beauty and the rich and diverse wildlife that it supports. The region contains a significant proportion of the UK's overall resource of important wildlife sites, habitats and species. The South West region covers 8% of the land area of the UK but supports a high proportion of some of the UK BAP priority habitats (Figure 3.5). These include⁴⁵:

- calcareous grassland – 62 % of the UK total – e.g. Salisbury Plain, Wiltshire (chalk) and Portland, Dorset (limestone);

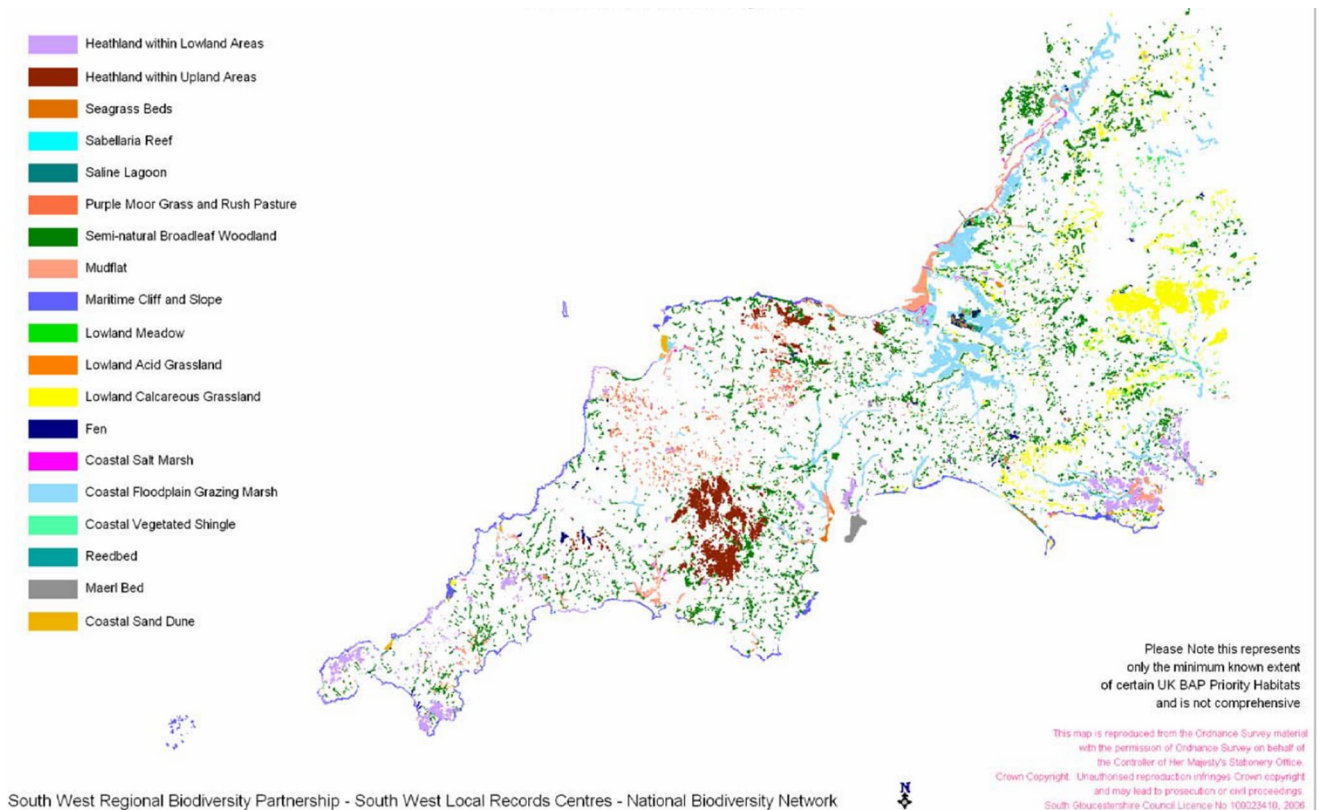
⁴⁵ South West Regional Biodiversity Partnership, undated. South West Biodiversity Implementation Plan. <http://www.biodiversitiesouthwest.org.uk/docs/South%20West%20Biodiversity%20Implementation%20Plan.pdf>

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- lowland heathland – 25 % of the UK total – e.g. in Dorset, Devon and Cornwall;
- lowland meadows- 57 % of the UK total;
- saline lagoons- 37 % of the UK total – e.g. The Fleet, Dorset is the largest brackish lagoon in England;
- offshore reefs – e.g. those off south and east Devon are among the best in the country; and
- ancient semi-natural woodland – 20% of England's total.

3.2.11 The South West supports about 25 species that are globally important, over 700 species that are of national conservation concern, and 34 species endemic to the UK, 11 of which are only found in the South West, such as lundy cabbage, western ramping fumitory and cornish path moss.

Figure 3.5 Distribution of UKBAP Priority Habitats within South West England



Source: Bristol Regional Environmental Records Centre (BRERC) 2006. Analysis of UK BAP Priority Habitats within Agri-environment Schemes and SSSIs in South West England. Report for the South West Regional Biodiversity Partnership

Likely Evolution of the Baseline without the WRMP24

3.2.12 The Natural Environment White Paper⁴⁶ identified the Government's aims to work to achieve more, bigger, better and less-fragmented areas for wildlife. It includes targets for

⁴⁶ HM Government (2011) The Natural Choice: securing the value of nature, The Natural Environment White Paper. Available online: <https://www.gov.uk/government/publications/the-natural-choice-securing-the-value-of-nature>. [Accessed 06/01/22]

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no net loss of priority habitat, an increase of at least 200,000 hectares in the overall extent of priority habitats and for at least 50% of SSSIs to be in favourable condition, while maintaining at least 95% in favourable or recovering condition. Biodiversity 2020⁴⁷ built on the Natural Environment White Paper and set out the strategic direction for biodiversity policy for the next decade on land (including rivers and lakes) and at sea.

3.2.13 The 2021 Environment Bill set out the future governance framework for environmental law following the UK's departure from the EU and also set out specific environmental protection measures. On 9th November 2021, the Environmental Bill reached its final stage (Royal Assent) and became an act of parliament. The Government's 25 Year Environment Plan⁴⁸, which would become the first 'Environmental Improvement Plan' under the Act, aims to "*strengthen existing requirements for net gain for biodiversity in planning policy*". The ambition is for development to enhance rather than diminish biodiversity. The biodiversity net gain objective requires a 10% increase in the level of biodiversity after development compared to the level before development. This will be measured by a metric, as set out by Defra, which uses habitats as a proxy for biodiversity value. Biodiversity improvements include, for example, a sedum roof on a building or an on-site nature reserve adjacent to a new housing development⁴⁹.

3.2.14 Under half of the SSSIs within the Environment Agency Wessex area are in favourable conditions and 56.2% of the sites are in unfavourable conditions. This being said, most unfavourable sites are in the recovering condition state- showing signs of improvement. This imbalance coincides with the significant declines in some habitats and species throughout the south west region in last few years and threats to the region's rich biodiversity include⁵⁰:

- land use changes, such as through agricultural intensification, decline in mixed farming, urban development and drainage/water level management;
- environmental pollution;
- climate change, which affects many habitats, especially soft coastal habitats (e.g. Bridgwater Bay saltmarshes), floodplain marshes (e.g. Somerset Levels and Moors), and chalk rivers (e.g. the River Avon) and will also affect sea defences, harbours, homes, businesses, infrastructure, archaeological sites and maritime heritage;
- fragmentation and isolation of habitats;
- damaging fishing methods in the marine environment; and
- introduction of non-native species.

⁴⁷ Defra (2011) Biodiversity 2020: A strategy for England's wildlife and ecosystem services. Available online: <https://www.gov.uk/government/publications/biodiversity-2020-a-strategy-for-england-s-wildlife-and-ecosystem-services>. [Accessed 06/01/22]

⁴⁸ Defra (2018) A Green Future: Our 25 Year Plan to Improve the Environment. Available online: <https://www.gov.uk/government/publications/25-year-environment-plan> [Accessed 06/01/22]

⁴⁹ CIRIA (2019) Biodiversity net gain. Good practice principles for development Case Studies. Butterworth, T, Baker, J, Hoskin, R. CIRIA C776b RP1048

⁵⁰South West Regional Biodiversity Partnership (undated). South West Biodiversity Implementation Plan. Available online: <http://www.biodiversitiesouthwest.org.uk/docs/South%20West%20Biodiversity%20Implementation%20Plan.pdf>. [Accessed 06/01/22]

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3.2.15 Wessex Water has a number of statutory duties towards biodiversity that would help to ensure conservation and enhancement without the WRMP24. Work to protect the environment is set out in the natural capital section of the Wessex Water Sustainability Vision 2016⁵¹. This includes two key drivers: have a biodiversity-rich landholding, while contributing to the wider region's biodiversity; and ensure the environmental integrity and biodiversity of river and groundwater catchments is in good or excellent condition. A further sustainability driver for the water industry was to meet the national SSSI condition targets for 2020 (at least 50% of SSSIs in favourable condition, while continuing to maintain at least 95% in favourable or recovering condition). In 2021 63% of Wessex Water's SSSI landholding was considered to be in favourable condition by Natural England.⁵² The Wessex Water Biodiversity Action Plan provides a coherent approach to the natural environment within the Wessex Water supply area, identifies the activities being undertaken or required to conserve and enhance the biodiversity within Wessex Water's landholding; and seeks opportunities to deliver wider biodiversity and environmental benefits throughout the company's work and to respond to new challenges in conservation in the UK.

Key Issues Relevant to the WRMP24

- 3.2.16 The key environmental, social and economic issues relevant to WRMP24 arising from the baseline assessment for biodiversity are:
- The need to protect and enhance sites, species and habitats designated for nature conservation.
 - The need to continue to increase and improve the condition of priority habitats and habitats of priority species and restore populations of these species and other specially protected species.
 - The need to avoid activities likely to cause irreversible damage to natural heritage.
 - The need to take opportunities to improve connectivity between fragmented habitats to create functioning habitat corridors.
 - The need to control the spread of Invasive Non-Native Species (INNS).
 - The need to recognise the importance of allowing wildlife and sensitive habitats to adapt to climate change .

⁵¹ Wessex Water (2018). Wessex Water Biodiversity Action Plan. Available online: <https://www.wessexwater.co.uk/environment/biodiversity-action-plan> [Accessed 14/02/22]

⁵² Wessex Water (2021) Conservation, Access and Recreation Report 2020-21 [Accessed 14/02/22]

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3.3 Geology, Land Use and Soils

Baseline Characteristics

Geology

- 3.3.1 The Wessex Water supply area is geologically diverse and includes a number of Principal Aquifers such as the Chalk and Great Oolite limestone. Geological sites may be sensitive to changes in quality and levels, pollution and land use. British Geological Survey (BGS) has produced summaries of the on-shore regional geology for England⁵³. The majority of the Wessex Water supply area is within the Hampshire Basin and Adjoining Areas region and the South West region (Figure 3.6).
- 3.3.2 The Hampshire Basin and Adjoining Areas region and the South West region have widespread but patchy superficial deposits of relatively recent origin. These are associated with the major river valleys and mainly comprise clays, silts, peats, sands and gravels up to 10 m thick. The superficial deposits are underlain by five major sedimentary bedrock layers related to stages in the infill of a deep sedimentary basin (Wessex Basin) (Figure 3.6):
- The youngest layer, Palaeogene sediments, is composed of soft alternating layers of clay, silt and sand with thin limestones. This later thins rapidly to the north towards the margin of the Wessex Basin.
 - The next major layer is the Chalk, a very fine-grained white or pale grey limestone, which often contains nodules of flint. The Chalk has the largest surface outcrop of any of the layers within the region, including the Dorset Downs, through to Salisbury Plain, the Andover or north Hampshire Downs, the area around Alton and Petersfield, Ports Down and the westernmost part of the South Downs. The Chalk is approximately 400 m thick and is the most important aquifer in southern England.
 - Beneath the Chalk are Lower Cretaceous sediments which include limestones, mudstones and beds of mineral salts. The sequence is thin in the west and north and is absent in the area between Taunton and Bridgwater.
 - The next major layer is Jurassic sedimentary rock made of three parts each comprising thick mudstones containing thin limestones and sandstones overlain by shelly and sandy limestones. The mudstones include the Lias, Oxford and Kimmeridge clays and are each between 250 and 400 m thick. The intervening three limestone units are the Oolite, Corallian and Portland groups each about 100 m thick.
 - The oldest layers are Permo-Triassic sedimentary rock. These rocks can be divided into three units: Mercia Mudstone (red mudstone about 450 m thick in south Dorset thinning to about 100 m over much of the remainder of the region); Sherwood Sandstone (up to 250 m thick, and a Principal Aquifer towards the west); and Aylesbeare Group (thin red sandstones and thick mudstones up to 800 m thick with

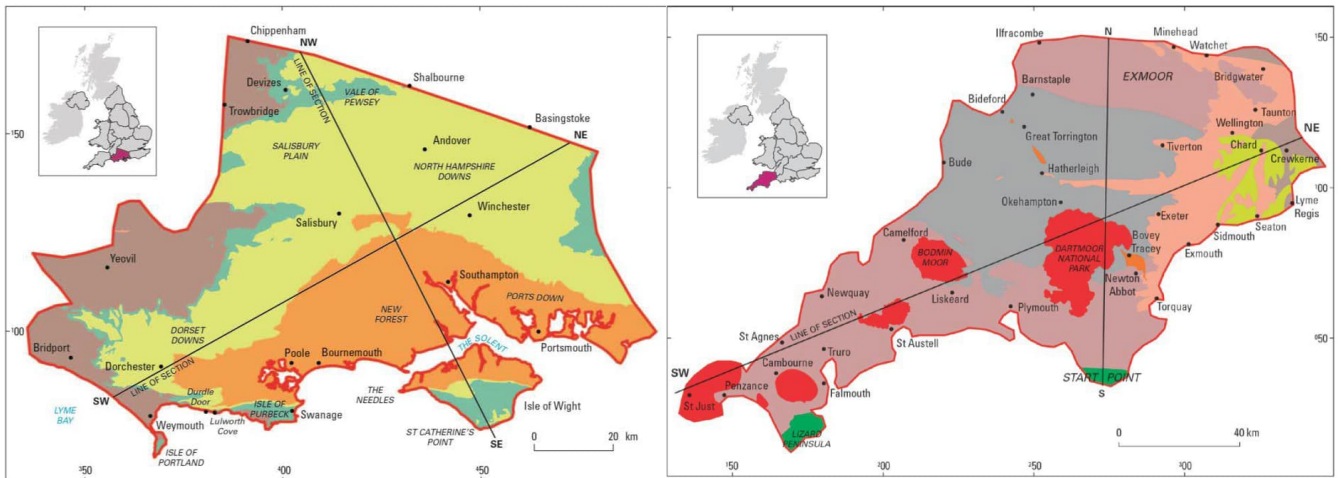
⁵³ BGS (undated). Regional Geological Summaries. Available from <https://www.bgs.ac.uk/research/ukgeology/regionalGeology/home.html> [Accessed 07/01/22]

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significant layers rich in pebbles and boulders). The Mercia Mudstone is present at the surface from east of Exmouth in the south to Minehead in the north.

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Figure 3.6 Geological Map for Hampshire Basin and Adjoining Areas Region and the South West Region



Age (Ma)	Map/section descriptor	Geological sub-units	Text descriptor	Age (Ma)	Map/section descriptor	Geological sub-units	Text descriptor		
35–60	Palaeogene sediments	Solent Group	[Orange box]	Sedimentary rocks	25–55	Neogene–Palaeogene sediments	Various		
		Bracklesham and Barton groups							
		Thames Group Lambeth Group							
70–100	Late Cretaceous sedimentary rocks	Chalk Group	[Yellow box]		90–110	Cretaceous sedimentary rocks	Chalk Group Selborne Group (Upper Greensand and Gault formations)	[Light green box]	
		100–145	Early Cretaceous sedimentary rocks					Upper Greensand Formation	[Green box]
Gault Formation	Corallian Group				Inferior and Great Oolite groups				
Lower Greensand Group	Wealden Group				Lias Group				
145–205	Jurassic sedimentary rocks	Portland Group	[Brown box]		200–290	Permo-Triassic sedimentary rocks	Mercia Mudstone Group	[Orange box]	
		Kimmeridge Clay Formation					Sherwood Sandstone Group		
		Corallian Group					Oxford Clay Formation		Oolite groups
205–290	Permo-Triassic sedimentary rocks	Mercia Mudstone Group	[Orange box]	315–345	Early Carboniferous rocks	Holsworthy Group	[Grey box]		
		Sherwood Sandstone Group				Aylesbeare Mudstone Group		Teign Valley Group	
290–500	Palaeozoic–Precambrian	Coal Measures Group	[Purple box]	Older sedimentary rocks and basement rocks	360–410	Devonian rocks	[Reddish-brown box]		
		Carboniferous Limestone						415 and older	Early Palaeozoic rocks
		Supergroup			Devonian, Silurian, Ordovician, Cambrian and Precambrian rocks	–	Igneous intrusions		
–	Basement rocks	Cornubian batholith	[Green box]						
		Lizard Complex							

Source: BGS (2020). Regional Geological Summaries. Available from <https://www.bgs.ac.uk/research/ukgeology/regionalGeology/home.html> [Accessed 24/01/22]

3.3.3 Geological Conservation Review (GCR) Sites is the register of known nationally and internationally important Earth science (geological and geomorphological) sites in the UK. The GCR underpins designation of Earth science features in SSSIs. There are 268 GCRs within the Wessex Water supply area⁵⁴.

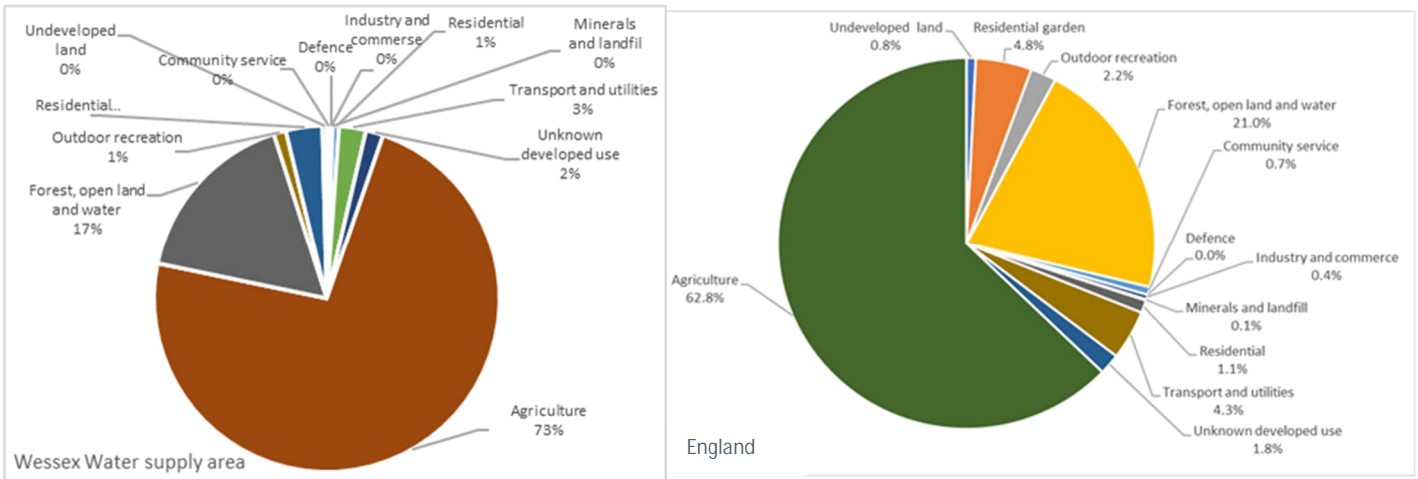
⁵⁴ Joint Nature Conservation Committee (JNCC) (2019). Geological Conservation Review. Available online: <http://jncc.defra.gov.uk/page-2947> [Accessed 07/01/22]

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Land Use and Soil

3.3.4 Figure 3.7 shows land use in England and the average land use across the eight local planning authorities (LPA) areas within the Wessex Water supply area⁵⁵ as reported in the Land Use Statistics for England (2018). This indicates that for both the supply area and England, agriculture constitutes the majority of the total land area (73.0% and 62.8% respectively). The next largest area of land cover is forest, open land and water (17.0% of land cover in the supply area and 21.0% of land cover in England). The proportion of new dwellings in non-previously developed land within the Wessex Water supply area decreased from 62% in 1996 to 37% in 2007 before increasing again to 57% in 2017 (Figure 3.8). A similar trend was observed in England. The development of non-previously developed land has the potential to affect resilience to drought as it can affect surface water catchments and water retention times.

Figure 3.7 Land Use in England and LPA areas within Wessex Water supply area (average)

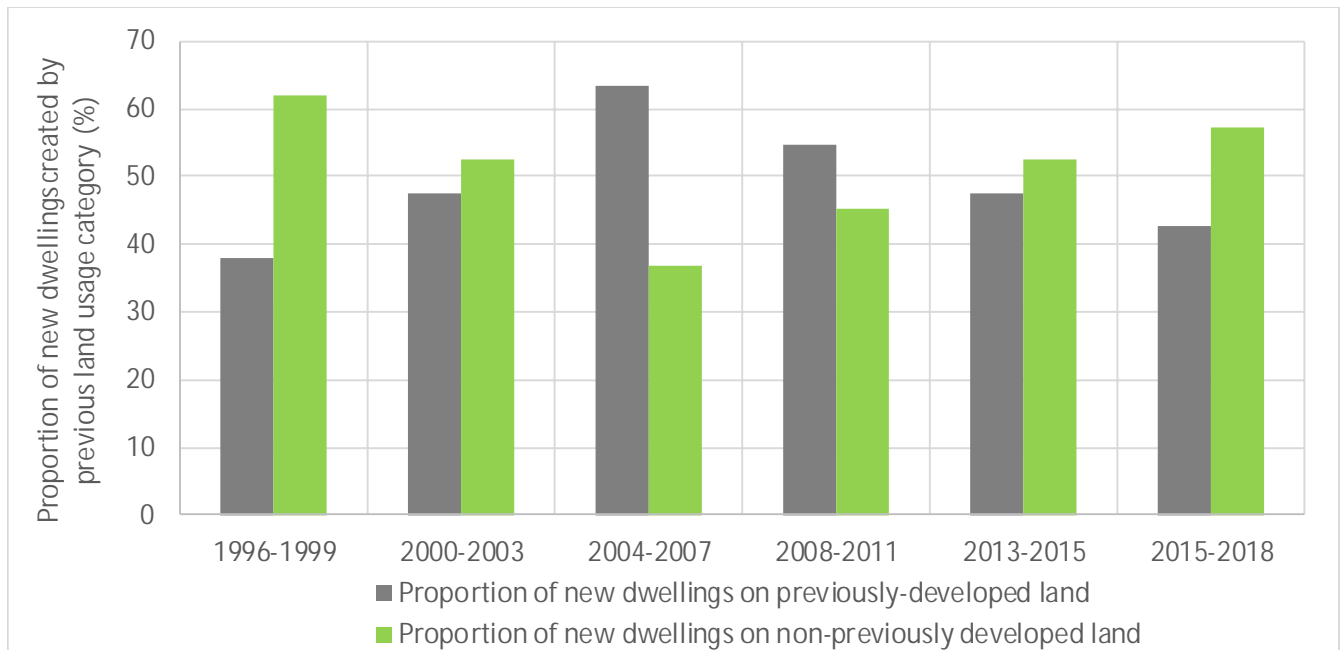


Source: Ministry of Housing, Communities and Local Government (2018). Statistical data set - Live tables on land use England 2018. Available online: <https://www.gov.uk/government/statistical-data-sets/live-tables-on-land-use> [accessed 11/01/22]

⁵⁵ Data for Local Authorities Dorset, Sedgemoor, South Somerset, Somerset West and Taunton and Wiltshire, noting that this list excludes those LPAs, who are only partially in the Wessex Water supply area.

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Figure 3.8 Proportion of new dwellings created by previous land usage category in LPA areas within Wessex Water supply area (average)



Source: Ministry of Housing, Communities and Local Government (2017). Statistical data set - Live tables on land use England 2017. Available online: <https://www.gov.uk/government/statistical-data-sets/live-tables-on-land-use> [accessed 26/01/22]

3.3.5 Previously developed land (PDL) is defined as land that is or was occupied by a permanent structure (excluding agricultural or forestry buildings, landfills and parks) and associated fixed surface infrastructure. In 2012, the South West of England had a total of 2,360 ha of vacant or derelict PDL that was unused or may be available for redevelopment, which was one of the lowest compared to other English regions (Table 3.2). Of this, about 23% had some form of planning permission or was allocated for development in a local plan. Two thirds (1,800 ha) of PDL in the South West was considered to be suitable for housing, with capacity for 29,910 homes.⁵⁶

Table 3.2 Previously Developed Land Available for Redevelopment in England in 2012

Region	All Vacant and Derelict PDL (ha)	Total Area Suitable for Housing (ha)
North West	7,220	3,500
South East	2,670	3,800
Yorkshire & the Humber	3,900	1,850
East of England	3,240	3,750
East Midlands	2,840	1,600

⁵⁶ University of the West of England, for the Campaign to Protect Rural England (2014) From Wasted Space to Living Spaces: The Availability of Brownfield Land for Housing Development in England. Available online: <https://www.cpre.org.uk/resources/from-wasted-space-to-living-spaces/> [accessed 13/01/22]

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Region	All Vacant and Derelict PDL (ha)	Total Area Suitable for Housing (ha)
South West	2,360	1,800
West Midlands	3,000	1,910
North East	2,600	1,830
London	1,240	2,650
<i>England</i>	<i>45,120</i>	<i>22,681</i>

Source: University of the West of England, for the Campaign to Protect Rural England (2014) *From Wasted Space to Living Spaces: The Availability of Brownfield Land for Housing Development in England*.

3.3.6 Adopted and emerging local plans of the local planning authorities that comprise the West of England seek to maximise development of brownfield sites in addition to greenfield land to meet housing and economic development needs, and in so doing reflect the National Planning Policy Framework⁵⁷. The Brownfield Register Regulations require LPAs to review their registers every 12 months. In 2021, the published brownfield registers identified 21,566 brownfield sites covering 26,256 hectares in England. This land has the capacity to hold 1.16 million homes; a figure which has seen an increase of 9.5% since 2020 alone⁵⁸.

Soils

3.3.7 The Agricultural Land Classification System (ALCS) developed by Defra provides a method for assessing the quality of farmland, principally for use in planning, by dividing the quality of land into five categories as well as non-agricultural and urban typologies. The 'best and most versatile land' is generally defined as the agricultural land which falls into Grades 1, 2 and 3a.

3.3.8 Figure 3.9 shows agricultural land quality across the Wessex Water supply area and Table 3.3 highlights the percentage of land in the Wessex Water supply area in each category along with data for England. The 'best' agricultural land is Grade 1. In the supply area, areas of Grade 1 quality agricultural land are located to the west and north of Taunton and to the west and south of Yeovil. Much of the poorer land (Grade 5) is located on the western edge of the supply area near Exmoor National Park. In general, the majority of land in the supply area is classified as 'Good/Moderate' (Grade 3) and is proportionally (slightly) greater than for England as a whole. Whilst the proportion of land classified as 'Poor' (Grade 4) or 'Very Poor' (Grade 5) is equal or less relative to England, the percentage within Grade 1 ('Excellent') or Grade 2 ('Very Good') is also less.

⁵⁷ MHCLG (2019) paragraph 118 of the National Planning Policy Framework which states that LPA policies and decisions "give substantial weight to the value of using suitable brownfield land within settlements for homes and other identified needs, and support appropriate opportunities to remediate despoiled, degraded, derelict, contaminated or unstable land...".

⁵⁸ Campaign to Protect Rural England (CPRE) (2021) The Countryside Charity – Recycling our land: State of brownfield 2021. Available online: https://www.cpre.org.uk/wp-content/uploads/2021/11/Nov-2021_CPPE_Recycling-our-land_brownfields-report.pdf [accessed 26/01/2022]

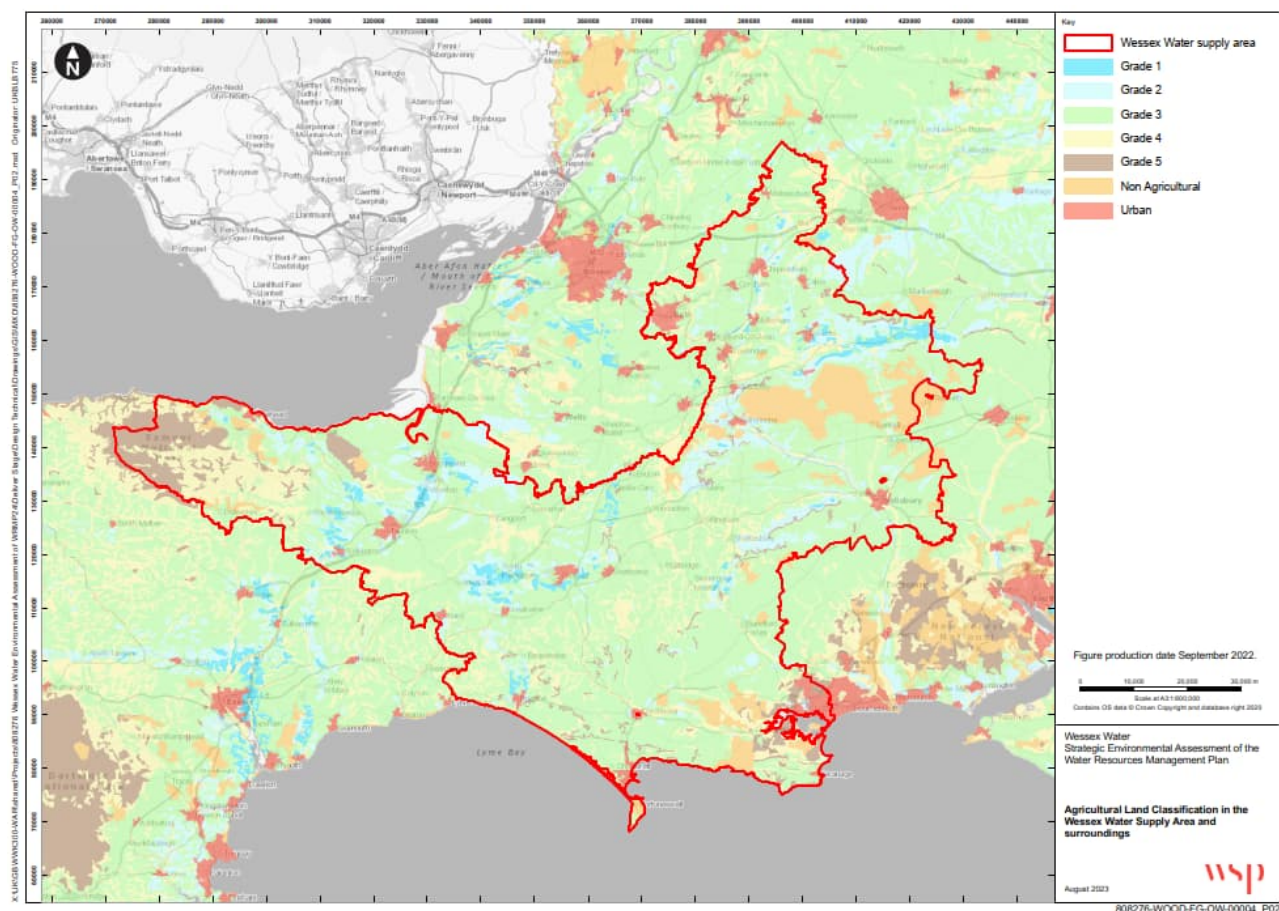
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Table 3.3 Agricultural Land Quality (as a percentage of land area)

Agricultural Land Grade	Wessex Water Supply Area	England
Grade 1 – Excellent	2.2	2.7
Grade 2 – Very Good	10.0	14.2
Grade 3 – Good / Moderate	59.5	48.2
Grade 4 – Poor	14.1	14.1
Grade 5 – Very Poor	4.8	8.4
Non agricultural	7.0	5.0
Urban	2.4	7.3

Source: Natural England Open Data GIS layers [Accessed in April 2020]

Figure 3.9 Agricultural Land Classification in the Wessex Water Supply Area and surroundings

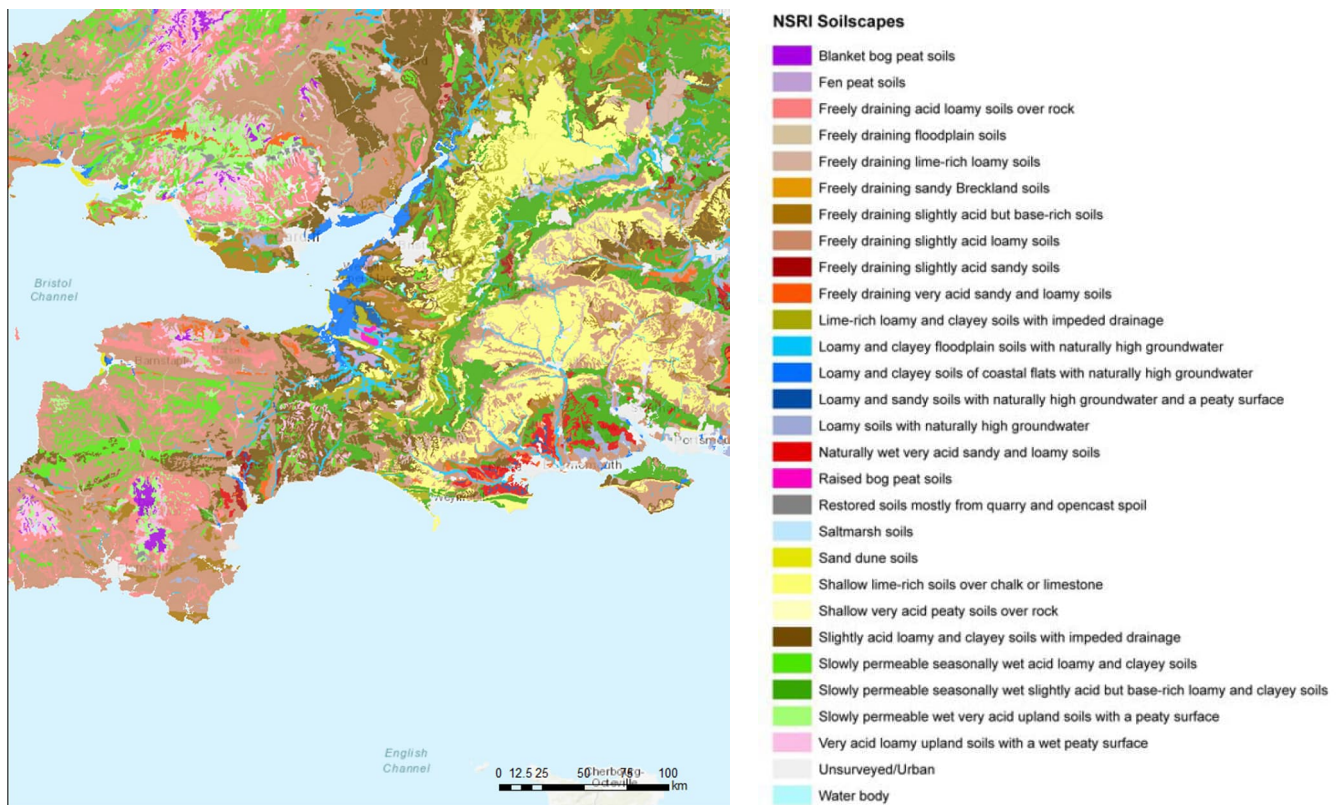


3.3.9 The different soil types in the South West region of England are shown on Figure 3.10. Between 2002 and 2011, an assessment of the health of soils in the southwest was carried out using visual and manual examination of 3,243 samples, over 31 catchments. The

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amount of soil damage in relation to runoff was assessed. Runoff has the potential to increase flooding, contaminate surface water with fertilisers and microbes, clog watercourses and decrease the amount of water seeping down into the aquifer. This study indicated that 38% of soils in the southwest show signs of enhanced surface water runoff due to soil degradation. A further 50% of sites had moderate levels of degradation with localised areas of run-off. Only 10% of sites featured low levels of soil degradation. Soils that showed the most signs of damage were cultivated brown sands, earths and loamy stagnogley soils⁵⁹.

Figure 3.10 Soils Map for South West England



Source: Soils for England and Wales. The UK Soil Observatory (UKSO) online map. Available online: <http://mapapps2.bgs.ac.uk/ukso/home.html> [Accessed 27/01/22]

Likely Evolution of the Baseline without the WRMP24

3.3.10 Soils need to be safeguarded to protect their ability to support plants and animals, store carbon, and provide other important ecosystem services. The vision of Defra’s Soils Strategy for England⁶⁰ is for all England’s soils to be managed sustainably and degradation

⁵⁹ European Commission DG Environment News Alert Service (2015). Science for Environment Policy. edited by SCU, The University of the West of England, Bristol. Available online: https://ec.europa.eu/environment/integration/research/newsalert/pdf/more_than_one_third_of_soils_studied_in_south_west_england_are_highly_degraded_52si4_en.pdf [Accessed 27/01/22]

⁶⁰ Defra (2009) Safeguarding our Soils. A Strategy for England. Available online: Safeguarding our soils: A strategy for England - GOV.UK (www.gov.uk) [Accessed 27/01/22]

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threats tackled successfully by 2030. This will improve the quality of England's soils and safeguard their ability to provide essential services for future generations.

- 3.3.11 Key threats to soils include draining soils, intensive agriculture, changes in land management, climate change, construction, and pollution. A study of soil structure in the southwest of England found that enhanced surface water run-off across whole fields, caused by high or severe levels of soil structural degradation, is widespread in the southwest.
- 3.3.12 Loss of nitrate from agricultural soils can lead to failure of drinking water standards and contribute to eutrophication in estuaries and the sea. Eutrophication can also be caused by excess phosphate entering water bodies, usually via soil erosion. However, it is expected that there will be increased opportunities to protect soils and improve water quality as agricultural practices and farm management are influenced by sustainable land management schemes.
- 3.3.13 The need for greenfield land to accommodate housing and economic development may lead to a loss of greenspace and soils. In addition, new development could increase pressure on geological assets. However, compliance with the planning principles of the National Planning Policy Framework⁶¹ (NPPF) should encourage the effective use of land by reusing land that has been previously developed (brownfield land), provided that it is not of high environmental value.

Key Issues Relevant to the WRMP24

- 3.3.14 The key environmental, social and economic issues relevant to the WRMP24 arising from the baseline assessment for geology and soils are:
- The need to influence how land is managed, promoting sustainable patterns of land use including the use of previously developed land.
 - The need to protect and avoid damage to geodiversity and conserve and enhance sites designated for geological interest.
 - The need to manage impacts on soil resources, including control of pollution and remediation of contaminated land, and minimise the loss of the best and most versatile agricultural land.

3.4 Water

Baseline Characteristics

Waterbodies

- 3.4.1 Wessex Water provides water supplies to 1.3 million people and nearly 50,000 businesses and in total delivers more than 340 million litres of drinking water every day in an area of

⁶¹ MHCLG (2021) National Planning Policy Framework. Available online: <https://www.gov.uk/government/publications/national-planning-policy-framework--2> [Accessed 27/01/22]

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731,706 ha in the South West of England. The majority (75%) of the water supply comes from groundwater sources. Important aquifers are located under Salisbury Plain, the southern Cotswolds and the Dorset Downs. The remainder of the water supply (25%) comes from impounding reservoirs located in Somerset. The supply area is operated as a single water resource zone (WRZ) comprising 80 water sources and over 11,800 km of water mains.

Water Availability

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

- **Water available for licensing:** There is more water than required to meet the needs of the environment. New licences can be considered depending on local and downstream impacts.
- **Restricted water available for licensing:** If all licensed water is abstracted there will not be enough water left for the needs of the environment. No new consumptive licences would be granted and restrictions may be in place. Trading from an existing licence holder can occur.
- **Water not available for licensing:** Water body flows are below the indicative flow requirement to help support Good Ecological Status (as required by the Water Framework Directive). No further consumptive licences will be granted. Trading from an existing licence holder can occur.

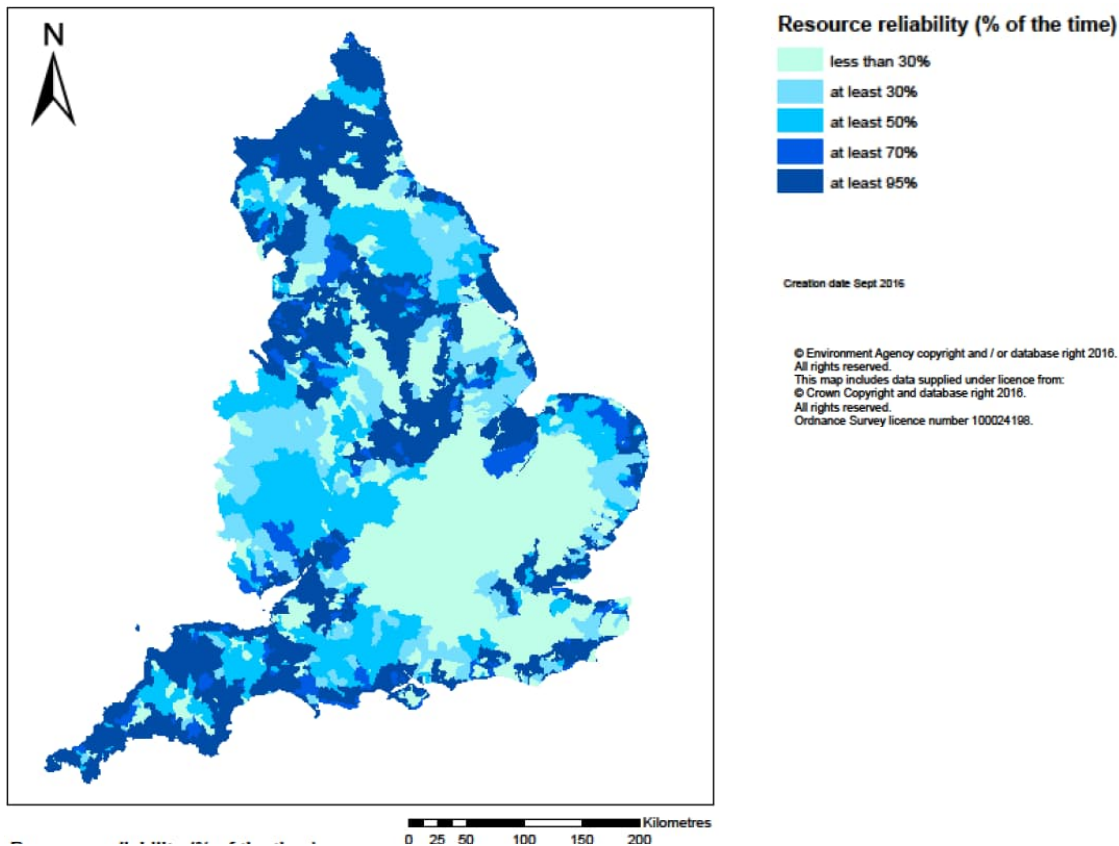
3.4.3 Wessex Water's supply area falls under the following CAMS:

- western part of the Dorset CAMS area;
- southern and eastern parts of the Bristol Avon, Little Avon, Axe and North Somerset Streams CAMS area;
- north-eastern part of the Hampshire Avon CAMS area; and
- the western part of the South and West Somerset CAMS area.

3.4.4 Figure 3.11 shows how reliable new surface water and groundwater licences are in England, using the CAMS assessment. The relevant water availability assessments for the CAMS are summarised in Table 3.4.

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Figure 3.11 Water Resource Reliability in England: percentage of time water would be available for abstraction under new licences



Source: Environment Agency (2016) Managing water abstraction. Available online: <https://www.gov.uk/government/publications/managing-water-abstraction> [Accessed 27/01/22].

Table 3.4 Summary of CAMS Water Availability Assessments

Catchment Abstraction Management Strategy	Water Available at AP	Restricted Water Available at AP	Water Not Available at AP	Total Number of APs
Dorset	0 (GW & SW)	15 (SW) 7 (GW)	0 (GW & SW)	22 (SW)
Bristol Avon, Little Avon, Axe and North Somerset Streams	8 (GW & SW)*	10 (GW & SW)*	3 (GW & SW)*	21 (GW & SW)*
Hampshire Avon	0 (SW)	17 (SW) 9 (GW)	1 (SW) 9 (GW)	18 (SW) 18 (GW)
South and West Somerset**	16 (GW & SW)	10 (GW & SW)	7 (GW & SW)	33 (GW & SW)

Notes: AP- Assessment Point; SW- surface water; GW- surface water

* No abstraction licence constraints defined as a result of groundwater management units assessments. The licensing strategy set out for surface water applies to both groundwater and surface water applications

** 2022 update presents data differently than other 3 reports and Q95 data used.

Source: Environment Agency (2020) Dorset: abstraction licensing strategy. A strategy to manage water resources sustainably; Bristol Avon and North Somerset Streams WFD Management Area Abstraction Licensing Strategy; Environment Agency (2012) Bristol Avon, Little Avon, Axe and North Somerset Streams CAMS; Environment Agency (2020) Hampshire Avon Abstraction Licensing Strategy; Environment Agency (2022) South and West Somerset Abstraction Licensing Strategy

FINAL REVISED**Sustainability Reductions - Review of Consents**

- 3.4.5 Under the Habitats Directive, the Environment Agency completed a review of all the consents (the RoC) that they regulated to ensure there were no detrimental impacts on the conservation interests in designated sites including SPAs and SACs. Discharge consents and water abstraction licences were included within this review. Where the Environment Agency was unable to demonstrate that abstraction licences and discharge consents were not having an adverse impact on the designated sites, it sought and where necessary enforced consent amendments.
- 3.4.6 The presence of protected sites in and adjacent to Wessex Water's supply area means that Wessex Water abstraction licences may require modification in order to achieve the desired environmental outcomes for protected sites. One recent RoC relates to 21 abstractions (surface and groundwater) operated by Wessex Water which could potentially have an impact on the River Avon SAC. The RoC concluded that the available data did not show any significant effects of abstraction on river ecology. However, the data set was unlikely to detect such impacts due to the coarse resolution and lack of baseline data for the pre-abstraction condition. Consequently, a targeted monitoring programme is ongoing to further assess the impact of abstraction. Previous RoCs concluded that impacts of abstractions were not significant (no licence change required) for Bere Stream (SSSI and BAP), Isle of Portland to Studland SAC, Tadnoll Brook (Dorset Heaths SAC/SPA), Exmoor & Quantock Oakwoods SAC, Bracket's Coppice SAC and Avon Valley SPA⁶².

Water Industry National Environment Programme (WINEP)

- 3.4.7 The Water Industry National Environment Programme (WINEP) identifies the actions that water companies (including Wessex Water) must undertake to deliver their environmental obligations and is developed by the Environment Agency and Natural England in consultation with the relevant water companies. The actions may include changes to abstractions driven by environmental legislation, for example to meet River Basin Management Plan objectives under the Water Framework Directive (WFD), or water resource investigations where more evidence is required to determine the impact of our operations. WINEP3 represents the actions that the Environment Agency has requested all water companies operating in England to complete between 2020 and 2025, in order to contribute towards meeting their environmental obligations. The actions will see up to £5 billion of investment by water companies in the natural environment through 2020 to 2025 (Price Review⁶³ (PR) 19). The investment comprises about 40% for meeting WFD drivers, 40% for meeting Urban Waste Water Treatment Directive drivers and the remainder for meeting other drivers (including biodiversity). Collectively, across all water companies, the investment aims to⁶⁴:

⁶² Wessex Water (2019). Final water Resources Management Plan 2019. Available online: <https://www.wessexwater.co.uk/environment/water-resources/management-plan> [Accessed 28/01/22]

⁶³ Ofwat (2019) PR19 Final determinations: Overview of companies' final determinations. Available online: <https://www.ofwat.gov.uk/wp-content/uploads/2019/12/PR19-final-determinations-Overview-of-final-determinations.pdf> [Accessed 28/01/22]

⁶⁴ Defra (2018) £5 billion investment by water companies to benefit the natural environment. Available online: <https://www.gov.uk/government/news/5-billion-investment-by-water-companies-to-benefit-the-natural-environment>. [Accessed 28/01/22]

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- protect and improve at least 6000 km of our waters;
- protect and improve 24 Bathing Waters and 10 Shellfish sites;
- protect and improve 1800 hectares of protected nature conservation sites; and
- enhance nearly 900 km of river and 4,276 hectares through wider biodiversity improvements.

3.4.8 This will help tackle some of the biggest challenges facing the water environment, from the spread of invasive species, low flows and unsustainable abstraction to the effects of chemical and nutrient pollution. The measures in the WINEP represent the basic measures required by water companies to meet their environmental obligations under their Asset Management Period 7 (AMP7) investment plans for the period 2020 - 2025. However, this also presents an opportunity for the industry to develop innovative approaches which will benefit customers, communities, the environment and natural capital. Wessex Water submitted their PR19 investment plan to Ofwat in December 2019.

3.4.9 For AMP8, four water resources investigations are driven by the Habitats Directive due to the potential for abstraction to impact protected sites (Table 3.5). These are primarily located in the Hampshire Avon and assess the existing abstraction regimes impact against the Common Standards Monitoring Guidance and WFD flow targets in the Hampshire Avon on the Bourne, Wylfe and Nine Mile River. Additional investigations concentrate on the potential for alternative groundwater abstraction locations close to Salisbury and assessments of sustainable abstraction. The final investigation driven by the habitats directive addresses the knowledge gap surrounding the impact of Wessex Water operations on the Somerset Levels and Moors. This includes water spilling into the rhyne system and will involve a water balance assessment including the numerous abstractions in the Parrett and any imports, exports or final effluent returns to the catchment.

Table 3.5 AMP8 Habitats Directive Investigations

Primary WINEP driver code	WINEP ID	Action name	Number of WINEP actions	Completion date
HD_INV	08WW100048a	Wylfe, Bourne and Nine Mile River Investigation	1	30/04/2027
HD_INV	08WW100048b	Hampshire Avon alternative abstraction approach investigation	1	30/04/2027
HD_INV	08WW100048c	Hampshire Avon resource relocation investigation	1	30/04/2027
HD_INV	08WW100121a	Quantifying the impact of Wessex Water abstraction on summer water availability in the Somerset Levels and Moors Ramsar.	1	30/04/2027
Total			4	

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- 3.4.10 Wessex Water has worked closely with the Environment Agency through the WINEP process to identify any potential changes to their licences and implementation timescales that could be required to ensure they are sustainable. As a consequence, two sources (Dewlish and Stubhampton) have been confirmed as requiring sustainability changes. For Dewlish source, a reduction in the daily licence by 3 MI/d (from 9.09 MI/d to 6.09 MI/d) with no change to the annual licence will be implemented at times when flow in the Devils Brook requires the stream support to be running. For Stubhampton source, the source will be operated under an Abstraction Incentive Mechanism to achieve a reduction in abstraction when groundwater levels drop below a trigger threshold without a legal change to the licence.

Supply and Demand

- 3.4.11 Wessex Water forecasts water supply and demand in the WRZ taking into account the RoC and the WINEP. To account for future uncertainties, an additional amount of water is included in the assessment of the supply demand balance called 'target headroom'. For the WRZ to have a 'surplus', the water available for supply must be equal to or greater than the sum of the total forecast demand plus the target headroom. Where a shortfall against target headroom occurs (i.e. the water resource zone has a supply demand deficit) measures are required to address the shortfall. These could include measures to increase supply, reduce demand or to address leakage across the WRZ.
- 3.4.12 Wessex Water's final 2019 Water Resources Management Plan (WRMP) was published in August 2019. The forecasts include projected rates of housebuilding that take account of Local Authority plans (nearly 5,000 new homes a year), a population growth rate of 0.5% per annum and an allowance for the potential impacts of climate change. The 2019 WRMP presents the outcome of the supply and demand assessment and predicted that the WRZ would have a surplus starting at 15 MI/d in 2020 rising to 32 MI/d by 2045.
- 3.4.13 As part of the WRMP24, Wessex Water now forecast a 'significant supply deficit' in Wessex Water's WRZ⁶⁵, currently estimated at between 50MI/d and 100MI/d. This is a result of several drivers, including climate change, a move to 1 in 500 drought resilience, and environmental destination work (which may lead to a ~60-80MI/d reduction in abstraction licences to protect chalk streams).
- 3.4.14 The WRMP24 planning process also needs to take into account the changes to water resource planning introduced following the publication of the National Framework for Water Resources⁶⁶. These include the development of regional plans and the role such plans have in facilitating bulk transfers between regions. For example, Appendix 2 to the National Framework 'Regional planning' states with respect to the West Country Water Resources Group (the regional planning group that includes Wessex Water) that *"the region is well placed to contribute to the water needs of Water Resources South East, and*

⁶⁵ Wessex Water (2021) Annual Performance Report 2021. Available online: <https://www.wessexwater.co.uk/corporate/strategy-and-reports/performance/annual-results-2021> [Accessed 28/01/22]

⁶⁶ Environment Agency (2020) Meeting our future water needs: a national framework for water resources. Available online: <https://www.gov.uk/government/publications/meeting-our-future-water-needs-a-national-framework-for-water-resources> [Accessed 28/01/22]

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also needs to link to Water Resources West to ensure the River Severn regime and habitats are appropriately considered".

Wastewater Treatment

- 3.4.15 Wessex Water collects 863 million litres of wastewater, including surface water from homes and businesses, across the Wessex Water sewerage area each day. The wastewater is transported by the 34,820 km of sewer to one of the 409 Water Recycling Centres (WRCs) for treatment before being returned to the surface water system (rivers and the sea)⁶⁷.
- 3.4.16 WRCs discharge consent standards are set to maintain good water quality. In 2018 Wessex Water’s WRCs achieved 100 per cent compliance with their environmental permit conditions. The EA gives water companies a star rating for their overall performance in protecting the environment (including during return of treated water to rivers and the sea). Wessex Water were awarded four out of four-star Environmental Performance Assessment (EPA) rating in 2020⁶⁸.

Water Quality

- 3.4.17 The WFD provides processes and requirements for management of the water environment to ensure sustainable use of water. The WFD also seeks to protect and improve the quality, both ecological and chemical, of inland surface waters, ground waters and coastal waters. Under the WFD, River Basin Management Plans (RBMP) are prepared for each River Basin District (RBD). The Wessex Water supply area lies within the geographical scope of the eastern area of the South West RBD and southern area of the Severn RBD.
- 3.4.18 There are 1,441 surface water bodies in the two RBDs of which around 19% were classed as having good ecological status in 2019. About 48 to 64% and 79 to 90% of the groundwater bodies in the two RBDs are currently at good chemical status and good quantitative status, respectively. The EA has produced draft RBMPs covering the South West and Severn for Cycle 3 (2021- 2027). Data for Cycle 3 supplements the data for Cycle 1 and Cycle 2 presented in this Scoping Report. The WFD key water status statistics are presented in Table 3.6.

Table 3.6 Key Status Statistics for Water Bodies within the Severn RBD and South West RBD

Water Bodies	South West River Basin District			Severn River Basin District		
	2015	2021	Draft RBMP Cycle 3 data	2015	2021	Draft RBMP Cycle 3 data
Surface Water Bodies						

⁶⁷ Wessex Water. Sewerage network. Available online: <https://www.wessexwater.co.uk/services/sewerage/sewerage-networks> [Accessed 28/01/22].

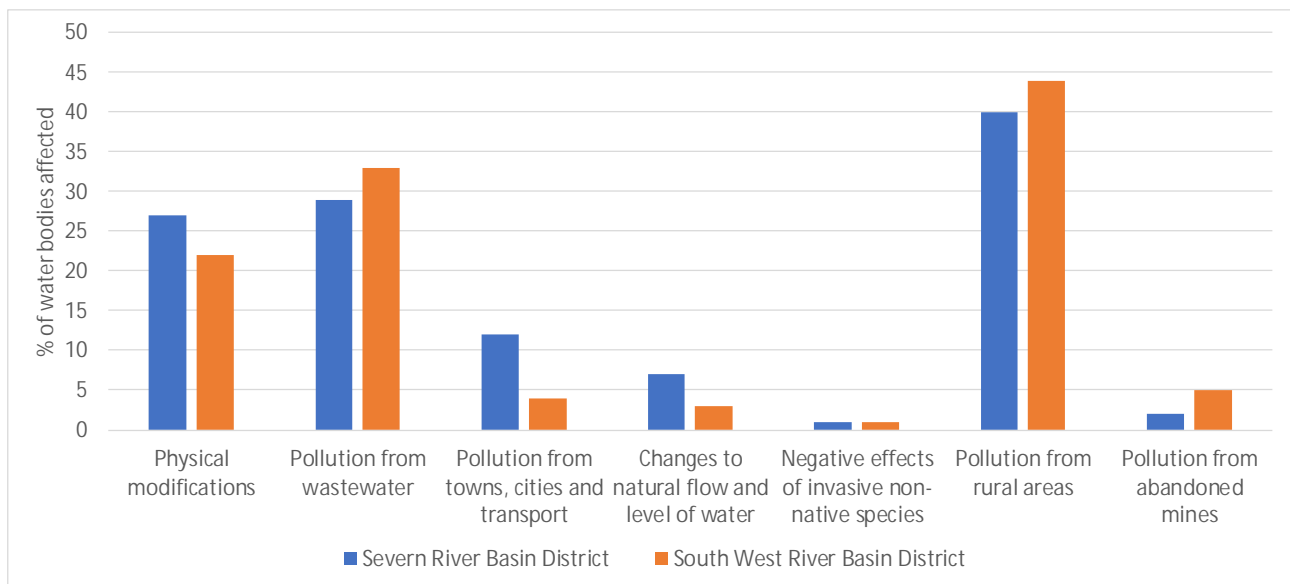
⁶⁸ DiscoverWater.co.uk (2022) Environmental Performance Assessment. Available online: <http://www.discoverwater.co.uk/environmental-performance> [accessed 28/01/22]

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Water Bodies	South West River Basin District			Severn River Basin District		
% of water bodies at good or better overall status	23%	29%	21%	20%	27%	9%
Groundwater Bodies						
% of water bodies at good chemical status	48%	60%	31%	64%	69%	64%
% of water bodies at good quantitative status	90%	90%	93%	79%	81%	73%

Source: Environment Agency (2015) Part 1: South West river basin district River Basin Management Plan and Environment Agency (2015) Part 1: Severn river basin district River Basin Management Plan / South West River Basin District Catchment Data Explorer Cycle 3 Draft RBMP data (<https://environment.data.gov.uk/catchment-planning/v/c3-draft-plan/RiverBasinDistrict/8/print>) and Severn River Basin District Catchment Data Explorer 2019 Cycle 3 Draft RBMP data (<https://environment.data.gov.uk/catchment-planning/v/c3-draft-plan/RiverBasinDistrict/9/print>)

Figure 3.12 Significant Water Management Issues in the Severn RBD and South West RBD



Source: Environment Agency (2015) Part 1: South West river basin district River Basin Management Plan and Environment Agency (2015) Part 1: Severn river basin district River Basin Management Plan

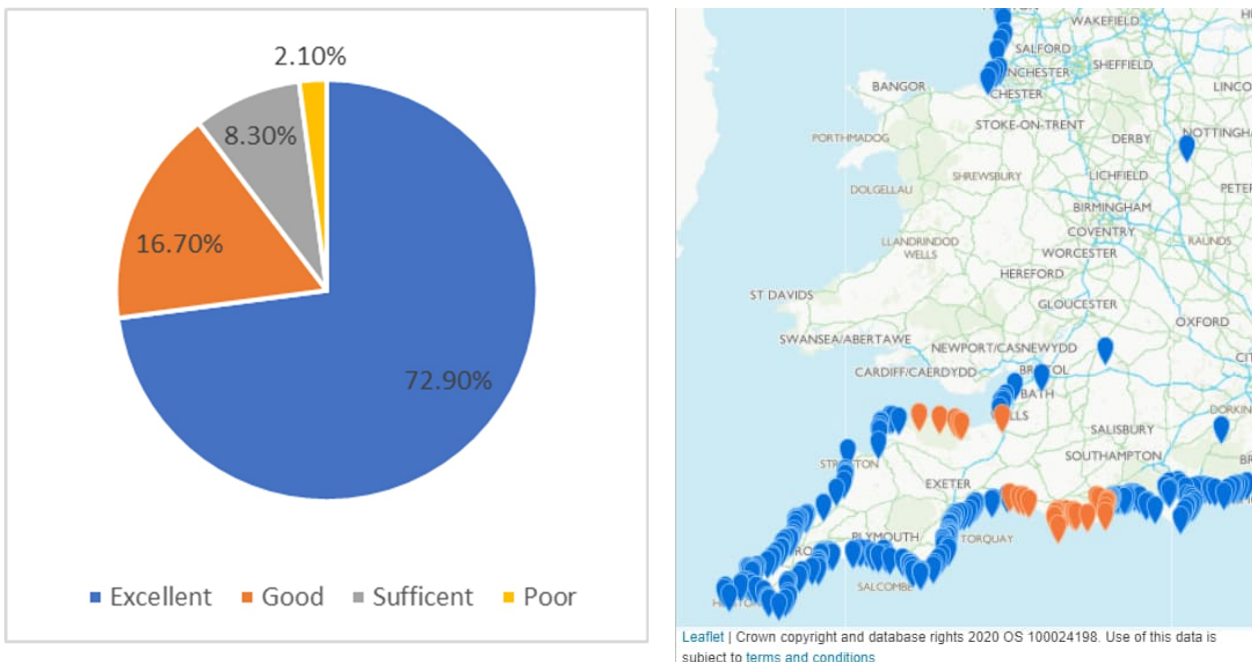
3.4.19 The pressures in the South West RBD and the Severn RBD preventing the water bodies from achieving good status are shown in Figure 3.12. The three main pressures are:

- Pollution from rural areas (diffuse runoff from agricultural land into watercourses increasing nitrates and phosphates and to a lesser extent pesticides);
- Pollution from wastewater (discharges from sewage treatment works releasing ammonia, phosphates, and other pollutants into the water environment);
- Physical modifications (for example, flood defences and weirs, and changes to the size and shape of natural river channels for land drainage and navigation can alter natural flow levels, cause excessive build-up of sediment in surface water bodies and the loss of habitats and recreational uses

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3.4.20 Bathing waters are designated waters and beaches that large numbers of bathers use. The quality of the environment should be preserved, protected and improved and human health should be protected by meeting the 'sufficient' water quality standards of the Bathing Waters Directive and to take such realistic and proportionate measures considered appropriate with a view to increasing the number of bathing waters classified as 'excellent' or 'good'. The current (2021) status of the designated bathing waters within the Wessex Water supply area is shown on Figure 3.13. This indicates that the majority (around 90%) of the designated bathing waters have achieved a classification of 'good' or 'excellent'.

Figure 3.13 Status of designated bathing waters within Wessex Water Supply Area (2021)



Notes: Location of designated bathing waters within Wessex Water Supply Area shown in orange on the map.
 Source: Environment Agency (2021). Bathing Water Profiles. Available online: <http://environment.data.gov.uk/bwq/profiles/> [Accessed 14/02/22] for 29 designated bathing waters: Lulworth Cove, Blue Anchor West, Dunster Beach, Minehead Terminus, Porlock Weir, Lynmouth, Poole Harbour Lake, Poole Harbour Rockley Sands, Poole Shore Road Beach, Poole Sandbanks Peninsular, Shell Bay North, Studland Knoll House, Swanage Central, Kimmeridge Bay, Durdle Door West, Durdle Door East, Ringstead Bay, Bowleaze Cove, Weymouth Lodmoor, Weymouth Central, Church Ope Cove, Portland Harbour Sandsfoot Castle, Portland Harbour Castle Cove, Hive, West Bay (West), Charmouth West, Seatown, Eypemouth, Burnham Jetty North.

Nitrate Vulnerable Zones

3.4.21 Nitrate Vulnerable Zones (NVZs) are areas of land that drain into surface or ground water where nitrate levels are already high (greater than 50mg/l as NO₃) or may have high levels of nitrate in the future. It is important to manage nitrate concentrations in coastal waters, estuaries, rivers, lakes and groundwater as high nitrate concentrations can contaminate drinking water sources and can contribute to an overall deterioration in water quality leading to eutrophication. Currently, NVZs account for some 55% of land in England⁶⁹.

⁶⁹ <https://www.gov.uk/government/collections/nitrate-vulnerable-zones> [Accessed 28/04/22]

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- 3.4.22 Table 3.7 identifies the number and area of NVZs within the Severn RBD and South West RBD which include the Wessex Water supply area. The proportion of NVZs designated for high nitrate in groundwater is similar in both districts, covering about one third of district area. In contrast, NVZs designated for high nitrate in surface water cover about half of the Severn RBD but only 4% of the South West RBD. NVZs designated for eutrophication cover less than 2% of the Severn RBD compared to 12% of the South West RBD.

Table 3.7 Nitrate Vulnerable Zones within the Severn RBD and South West RBD

Reason for Designation	Number of NVZs		% of River Basin Area covered by NVZ	
	Severn RBD	South West RBD	Severn RBD	South West RBD
High nitrate in surface water	66	26	49	4
High nitrate in groundwater	22	15	23	17
Eutrophication in lakes and reservoirs	11	9	2	1
Eutrophication in estuaries or coastal waters	0	5	0	12

Source: Environment Agency (2022) Protected areas data for Severn River Basin District (<https://environment.data.gov.uk/catchment-planning/v/c3-draft-plan/RiverBasinDistrict/9/protected-areas>) and Environment Agency (2022) Protected areas data for South West River Basin District (<https://environment.data.gov.uk/catchment-planning/v/c3-draft-plan/RiverBasinDistrict/8/protected-areas>)

Flood Risk

- 3.4.23 The Environment Agency's Flood and Coastal Erosion Risk Management capital investment programme aims to reduce the risks of flooding and erosion to people's homes and the economy in England. This includes using natural flood management measures to slow, store and filter floodwater. This will achieve more sustainable flood risk management schemes, often with significant additional environmental and social benefits. This approach is used together with traditionally constructed hard defences to increase the resilience of communities to extreme events, both floods and drought. In identifying and designing schemes the impacts of climate change, such as more winter rainfall, more intense rainstorms and sea level rise are taken into account.
- 3.4.24 The National Flood and Coastal Change Risk Management Strategy for England, published by the Environment Agency in 2011, provided the overarching framework for action by all risk management authorities to tackle all sources of flooding and coastal change, including surface water. Significant progress has been made and, on the whole, risk management authorities have met the original strategic objectives and measures. Within the National Strategy, Flood Risk Management Plans (FRMPs) have been prepared by NRW and the Environment Agency setting out what measures will be taken to help manage the risk of flooding to people, the environment and economic activity at a RBD level. In 2019, the Environment Agency published a revised draft Strategy which sets out a

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vision for a nation ready for, and resilient to, flooding and coastal change up to 2100⁷⁰. Following consultation, the final Strategy was published in July 2020.

- 3.4.25 Flood Zones 1, 2 and 3 are terms used to describe a series of fluvial and coastal flood extent datasets produced by the Environment Agency. Flood Zone 1 represents areas least at risk of flooding (assessed as having a less than 1 in 1,000 annual probability of river flooding in any year). Flood Zone 2 shows the additional extent of an extreme flood from rivers or the sea, with up to a 0.1% (1 in 1,000) chance of occurring each year. Flood Zone 3, meanwhile, represents areas with a high probability of flooding, which could be flooded either from rivers or the sea if there were no flood defences. These areas could be affected by flooding from the sea that has a 0.5% (1 in 200) or greater chance of occurring each year, or flooding from rivers that has a 1% (1 in 100) or greater chance of occurring each year.
- 3.4.26 The Environment Agency flood map (rivers and sea) for the Wessex Water supply area is shown on Figure 3.14. Most of the supply area is within Flood Zone 1. Somerset has large areas of floodplain (Flood Zones 2 and 3) with wide rivers that take a long time to respond to rainfall. In some lowland areas, such as the Somerset Levels and Moors, land is at or near sea level and is at risk of tidal flooding and river tide locking. These areas depend on raised defences to keep water out and rely on manmade drainage systems, including channels and pumping stations for drainage. Flooding in these areas can be significant and last for prolonged periods. West Dorset has smaller, steep catchments with fast-flowing rivers that respond rapidly to rainfall (areas mapped within Flood Zones 2 and 3). River levels in this area can rise very quickly during intense rainfall and this poses a risk to life, particularly to small or dispersed communities. Table 3.8 provides a summary of flood risk to people from rivers and the sea based on the information contained in the published FRMPs for the Severn RBD⁷¹ and South West RBD⁷² which include the Wessex Water supply area.

Table 3.8 Summary of flood risk to people from rivers and the sea in the Severn RBD and South West RBD

River Basin District	High Risk	Medium Risk	Low Risk	Very Low Risk
South West	36,350 (1%)	59,500 (2%)	166,200 (7%)	8,000 (0.2%)
Severn	32,600 (1%)	62,100 (2%)	240,650 5%	33,050 (1%)

Notes: Data shown as number of people at risk (% of total population at risk in RBD)

Source: NRW and Environment Agency (2016). Severn River Basin District Flood Risk Management Plan 2015-2021. Part A – Background and River basin District wide information. Available online: <https://www.gov.uk/government/publications/severn-river-basin-district-flood-risk-management-plan> [Accessed 04/05/22]

NRW and Environment Agency (2016) South West River Basin District Flood Risk Management Plan 2015-2021. Available online: <https://www.gov.uk/government/publications/south-west-river-basin-district-flood-risk-management-plan> [Accessed 04/05/22]

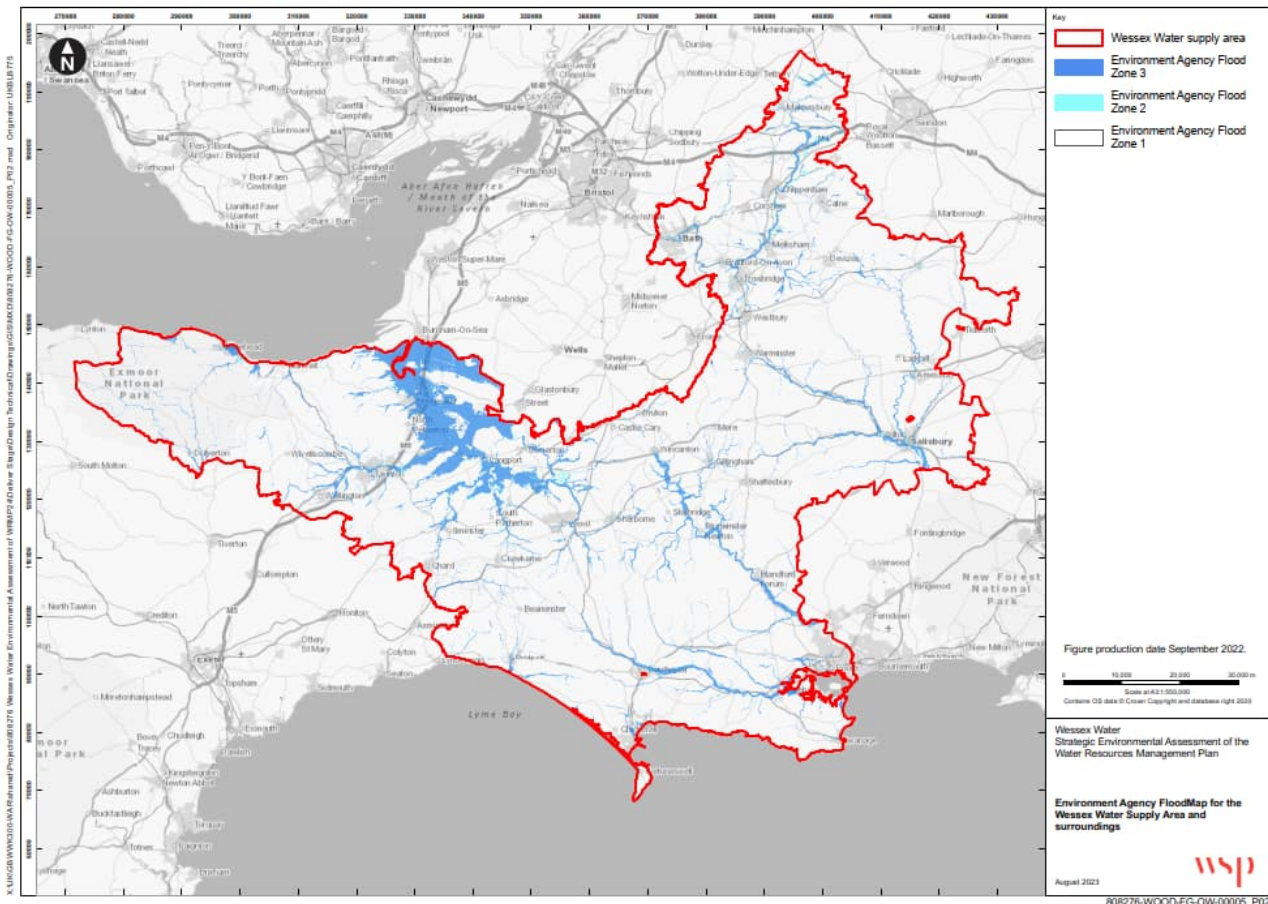
⁷⁰ <https://consult.environment-agency.gov.uk/fcrm/national-strategy-public/>

⁷¹ NRW and Environment Agency (2016). Severn River Basin District Flood Risk Management Plan 2015-2021. Part A – Background and River basin District wide information. Available online: <https://www.gov.uk/government/publications/severn-river-basin-district-flood-risk-management-plan> [Accessed 04/05/22]

⁷² NRW and Environment Agency (2016) South West River Basin District Flood Risk Management Plan 2015-2021. Available online: <https://www.gov.uk/government/publications/south-west-river-basin-district-flood-risk-management-plan> [Accessed 04/05/22]

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Figure 3.14 Environment Agency Flood Map for the Wessex Water Supply Area and surroundings



- 3.4.27 Wessex Water's operational area is subject to flooding in certain locations. The company has undertaken flooding resilience assessments at 63 key assets, including Water Treatment Centres (WTCs), WRCs, sewage pumping stations, source and supply sites⁷³.
- 3.4.28 Climate change may have a significant effect upon future flood risk in the region. This is discussed further below and in Section 3.6.

Drought

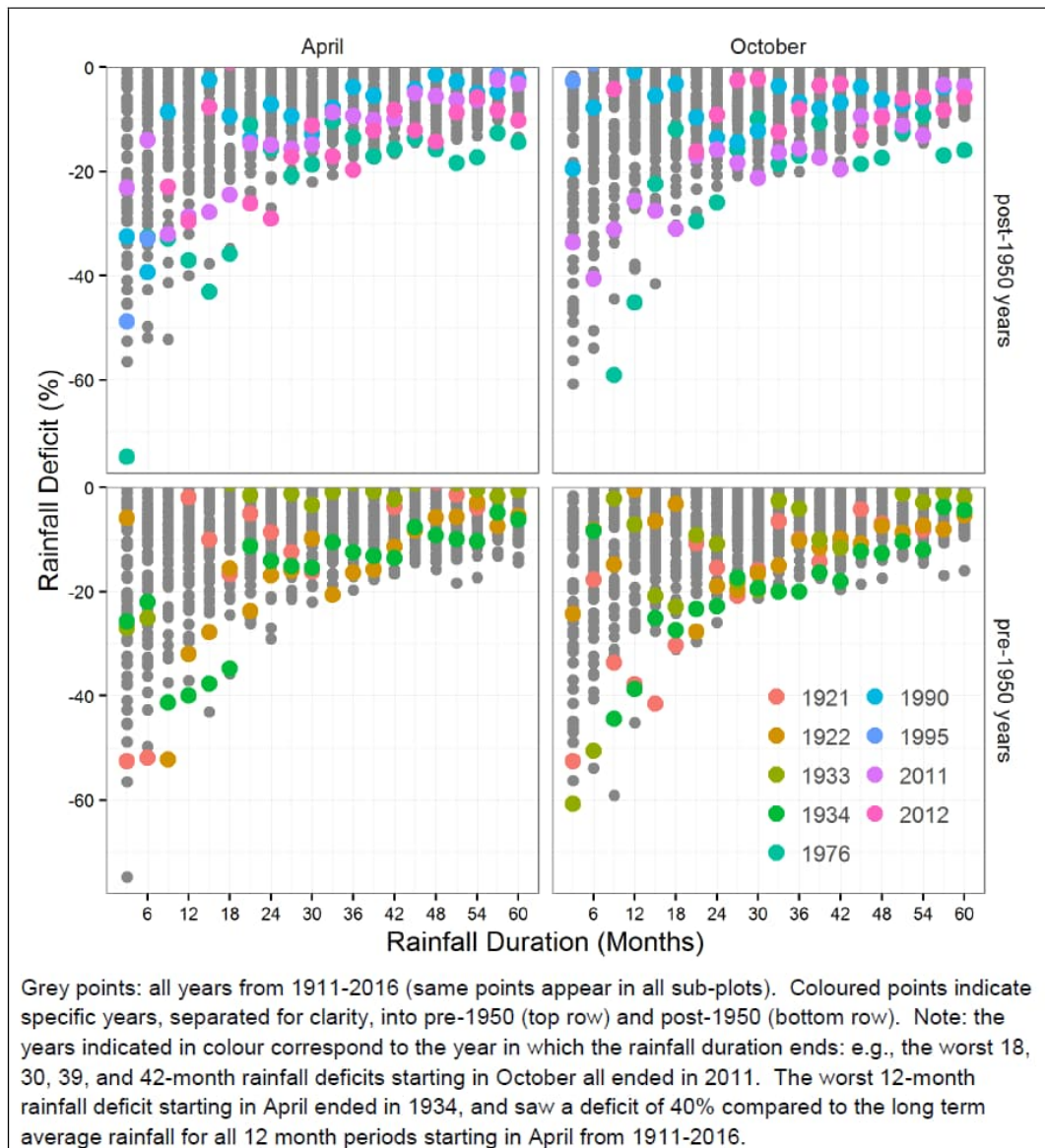
- 3.4.29 A drought is defined as a water shortage resulting from an extended period of dry weather. Mean annual rainfall for the Wessex Water region is 871mm/year (1911-2020) and 838mm for the period 1961-1990 (as used as a baseline for UK Climate Projections). Periods of below average rainfall (rainfall deficit) lead to water resource shortages and drought conditions. The drought periods are typically characterised by deficit (the absolute magnitude of rainfall deficit compared to average rainfall); duration which rainfall is below average conditions; and start date (time in the year at which the deficit starts).
- 3.4.30 Figure 3.15 shows rainfall deficit as a function of rainfall duration, with selected years highlighted, and considering drought deficit durations starting from both April and October (to highlight periods of both summer and winter deficits). This shows that:

⁷³ Mott MacDonald (2017). Flood Risk Assessment and Mitigation Strategy Wessex Water PR19 Flooding Resilience Assessments.

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- Rainfall deficits are larger, as a percentage of mean rainfall, for shorter duration events.
- The largest summer rainfall deficits occurred in 1921 and 1976. The driest winters occurred in 1933 and from 1975 to 1976.
- For longer duration droughts starting in April, the years 1976, 1934, and 2012 consistently showed high deficits. Starting in October, high deficits occurred in, and leading up to, 1976, 2011 and 1934.
- A notable dry period when Wessex Water last imposed water use restrictions was 1976. The magnitude of rainfall deficit that occurred in 1976 was the result not only of a dry summer, but also that the 5 years leading up to the drought were the driest 5 years on record.

Figure 3.15 Rainfall deficit as a function of rainfall duration for October and April start months



Source: Wessex Water (2019). Final water Resources Management Plan 2019. Available online: <https://www.wessexwater.co.uk/environment/managing-our-impact/management-plan> [Accessed 22/05/22]

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Likely Evolution of the Baseline without the WRMP24

3.4.31 Under the WFD, rivers in England were required to have achieved 'good ecological status' by 2015. Where this was not possible and subject to criteria set out in the WFD, the aim is to achieve good status either by 2021 or 2027. The second River Basin Management Plan cycle, 2015 – 2021 recognises the large degree of uncertainty about achieving such significant increases to achieve good status or better by 2021. In England, the Environment Agency propose to improve compliance with good status by delivering measures locally in an integrated way to achieve improvements. As noted in draft cycle 3 RBMP summary⁷⁴, the

"For many programmes of measures, although there is confidence that they will be implemented by 2027, it is not yet known which actions will take place and where. The outcomes from these programmes of measures are therefore not reflected in the water body status objectives proposed for achievement by 2027."

3.4.32 Increased soil sealing and compaction from farming practices and urban development resulting in loss of water storage capacity and more surface water run-off will increase flood risk. The loss of natural coastal flood defences is also considered to be an important issue.

3.4.33 Climate change is likely to exacerbate severity and frequency of storms and periods of drought over the next 100 years. The most recent information from the UK Climate Impacts Programme (UKCP18)⁷⁵ forecasts:

- At 2°C of global mean warming, there will be slightly wetter winters and drier summers, with summer drying more in the South. Dry days in summer will have 30% less precipitation in parts of the South West.
- At 4°C of global mean warming, median winter precipitation will increase by up to 20% across most of the England, median summer precipitation will decrease most in the south with median reductions of up to 20 to 30% across much of the England, dry summer days will decrease in precipitation by up to 50% in summer across much of Southern England, the wettest summer days will dry by up to 40% on parts of the south coast.

3.4.34 The second UK Climate Change Risk Assessment Evidence Report (2017) forecasts large deficits by the 2050s in the provision of public water supplies under the upper bound scenario (high population growth and a high climate change impact), with projected deficits becoming more acute and widespread by the 2080s. Under a lower bound scenario (a low population and medium climate change projection), England is projected to be in deficit by 2050s particularly in the South East.⁷⁶ The Evidence Report has been

⁷⁴ EA (2021) Summary of the draft river basin management plans, 22 October 2021. Available online: <https://www.gov.uk/government/publications/summary-of-the-draft-river-basin-management-plans/summary-of-the-draft-river-basin-management-plans> [Accessed 04/04/2022]

⁷⁵ Met Office (2019). UKCP18 Factsheet: Derived projections. Available online: <https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/factsheets> [Accessed 05/05/22]

⁷⁶ HR Wallingford (2015) CCRA2: Updated projections for water availability for the UK. Available online: <https://www.theccc.org.uk/publication/climate-change-risk-assessment-ii-updated-projections-for-water-availability-for-the-uk/>

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updated in 2020 using the UKCP18 climate projections⁷⁷ with deficits still forecast and water resource zones in the south east expected to be the worst affected. According to the Water Resources Long-Term Planning Framework (2015-2065) there is a significant and growing risk of severe drought, with impacts arising from climate change, population growth and environmental drivers to reduce abstraction.⁷⁸

3.4.35 The 2019 WRMP assessed the drought severity for annual average and critical period planning scenarios at the start (2020/21) and end (2044/45) of the planning period. This indicated that without the benefits of any drought measures, Wessex Water's supply-demand balance is in surplus under all scenarios across the planning period. For events more extreme than those observed in the historical record, the 2019 WRMP did identify the potential benefits of drought measures that could be used.

Key Issues Relevant to the WRMP24

3.4.36 The key environmental, social and economic issues relevant to the WRMP24 arising from the baseline assessment for water are:

- The need to maintain and further improve the quality of the rivers, estuarine and coastal waters taking into account WFD objectives.
- The need to maintain the quantity and quality of groundwater resources taking into account WFD objectives.
- The need to ensure sustainable and appropriate abstraction levels and water flow/levels in waters across the full range of regimes from low to high conditions and meet society's needs for a resilient water supply.
- The need to maintain and enhance the resilience of the water environment to the effects of climate change.
- The need to reduce and manage flood risk.

3.5 Air Quality

Baseline Characteristics

3.5.1 Good air quality is essential to ensure people and ecosystems are healthy, productive and balanced. The emission of pollutants to air can pose a hazard to human health (e.g. respiratory illnesses and lung conditions) and can also have a negative impact on the environment (e.g. changes to ecosystems and damage to vegetation when present within the atmosphere in excess of certain concentrations). Air quality within this context

⁷⁷ HR Wallingford (2022) Updated projections of future water availability for the third UK Climate Change Risk Assessment Technical Report. Available online: https://www.ukclimaterisk.org/wp-content/uploads/2020/07/Updated-projections-of-future-water-availability_HRW.pdf [Accessed 24/08/22]

⁷⁸ Water UK (2016) Water Resources Long-Term Planning Framework (2015-2065). Available online: <https://www.water.org.uk/water-resources-long-term-planning-framework>

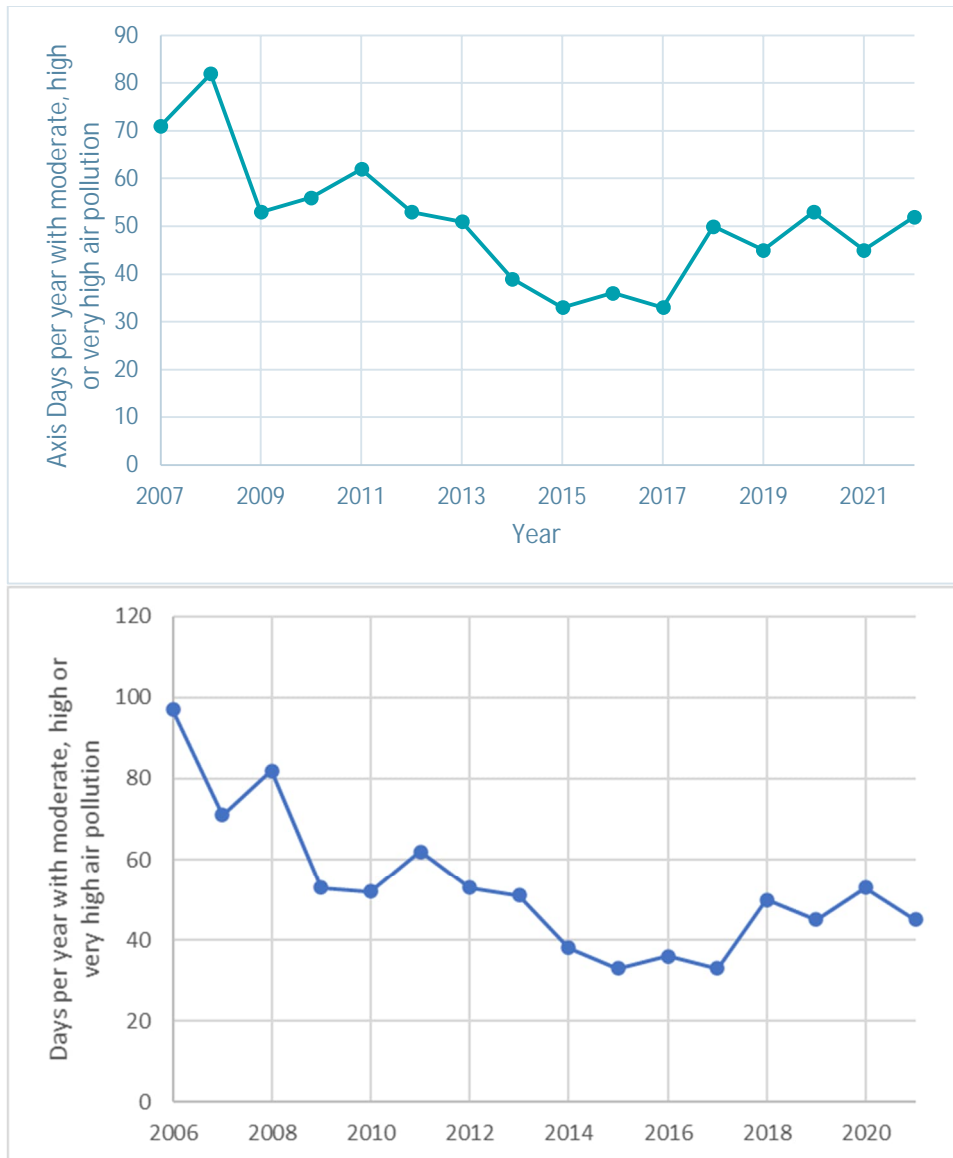
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concerns the levels of pollutants emitted into the air and their significance, in terms of the risk of adverse effects on the environment and/or human health.

- 3.5.2 Emissions of gases into the air from transport, industry and agriculture can be transported significant distances by prevailing weather patterns and, via precipitation and deposition, eventually cause diffuse water pollution, the effects of which may be very long term. Pollutants may persist in groundwater or sediments for decades or centuries and nutrient-enriched lakes and acidified waters may take many years to recover. All sectors will be required to make cuts in air emissions to meet the targets of the National Emissions Ceilings Directive.
- 3.5.3 Options in the WRMP may require construction, the operation of abstraction and treatment operations in new locations and changes to the operation of such processes in existing locations. These activities have the potential to lead to adverse effects on air quality through emissions associated with construction requirements or through the operation of the options.
- 3.5.4 For the purposes of air quality monitoring, the UK is divided into 43 zones. Figure 3.16 shows air pollution between 2006 and 2020 in the South West zone, which includes the Wessex Water Supply Area. Air pollution is defined by a daily air quality index (DAQI) which is determined by the highest concentration of five air pollutants (nitrogen dioxide, sulphur dioxide, ozone, particles < 2.5µm (PM2.5) and particles < 10µm (PM10)). The data for the South West zone show a reduction in the number of days with moderate to very high air pollution (DAQI greater or equal to 4) from the 2006 peak (at 97 days), which was related to hot summer and other pollution episodes, to less than 40 days before increasing slightly to 50 days in 2018 and 53 days in 2020. This decreases to 45 days in 2021 and increases to 52 days in 2022 (using data up to 24th of August 2022).

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Figure 3.16 Days with Moderate or Higher Air Pollution in the South West Zone*



Source: Defra- daily air quality index (DAQI) regional data (available at <https://uk-air.defra.gov.uk/data/DAQI-regional-data> (accessed 25/08/22))

*data for 2022 is only available up to 24th August

3.5.5 Air quality compliance data in 2020 for the South West zone is summarised below⁷⁹:

- the limit value for hourly mean and annual mean nitrogen dioxide (NO₂) was met;
- the limit value for both daily mean and annual mean concentration of PM10 particulate matter was met;
- the target value for annual mean concentration of PM2.5 particulate matter, the Stage 1 limit value (which came into force on 1 January 2015), and the Stage 2 limit value (which came into force on 1 January 2020) were met;

⁷⁹ Defra (2021) Air Pollution in the UK 2020. Available online: <https://uk-air.defra.gov.uk/library/annualreport/> (Accessed 27/01/22)

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- the target values for ozone set for the protection of vegetation (based on the AOT40 statistic⁸⁰) and set for the protection of human health (maximum daily eight-hour mean) were met;
- the long-term objectives for ozone for the protection of vegetation (based on the AOT40 statistic) and set for the protection of human health (maximum daily eight-hour mean) were exceeded (along with most other UK zones); and
- the target values for arsenic, cadmium, nickel and benzo[a]pyrene were met.

3.5.6 Local Authorities must regularly assess air quality in their area against the standards and objectives of the National Air Quality Strategy⁸¹. Air Quality Management Areas (AQMA) are declared by Local Authorities in specific locations where atmospheric concentrations of one or more pollutants (including pollutants such as nitrogen dioxide (NO₂), sulphur dioxide (SO₂) volatile organic compounds (VOCs) and fine particles up to 10µm in size (PM₁₀)) are either close to or exceeding statutory objectives set out within the National Air Quality Strategy. There are 20 active AQMAs declared by Local Authorities within the Wessex Water supply area, the majority declared because of emissions from road transport. As shown in Table 3.9, Wiltshire Council has the most AQMAs in place.

Table 3.9 Number of AQMAs in Wessex Water Supply Area per Local Authority (2022)⁸²

Local Authority	Number of Active AQMA	Pollutant AQMA in place for
Bournemouth, Christchurch and Poole Council	2 (and 1 revoked)	Nitrogen dioxide NO ₂
Dorset Council	2	Nitrogen dioxide NO ₂
South Somerset District Council	1	Nitrogen dioxide NO ₂
Wiltshire Council	7	Nitrogen dioxide NO ₂
Wiltshire Council	1	Both Nitrogen dioxide NO ₂ Particulate Matter PM10
Somerset West and Taunton Council	2	Nitrogen dioxide NO ₂
Bath and North East Somerset Council	5	Nitrogen dioxide NO ₂

3.5.7 Poor air quality is the largest environmental risk to public health in the UK. The Public Health England’s Review of Interventions to Improve Outdoor Air Quality and Public

⁸⁰ The AOT40 statistic (expressed in µg m⁻³.hours) is the sum of the difference between hourly concentrations greater than 80 µg m⁻³ (= 40 ppb) and 80 µg m⁻³ over a given period using only the hourly mean values measured between 08:00 and 20:00 Central European Time each day.

⁸¹ Defra (2007). Air Quality Strategy for England, Scotland, Wales and Northern Ireland. Available online: www.defra.gov.uk/publications/2011/03/28/air-quality-strategy-vol2-pb12670/ (Accessed 28/01/22)

⁸² Defra (2022) List of Local Authorities with AQMAs. Available online: <https://uk-air.defra.gov.uk/aqma/list> (Accessed 27/01/22)

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Health⁸³ has estimated that the burden of human-made air pollution in the UK was equivalent to 28,000 – 36,000 deaths each year. Costs to society are estimated at more than 20 billion pounds every year.

- 3.5.8 Some of the most widespread and significant effects of air pollution on ecosystems is acidification. Freshwaters have been increasingly polluted by the products of fossil fuel combustion, especially sulphur and nitrogen gases, leading to acidification of surface freshwaters and a decline in biodiversity. Between 2013 and 2015, 44% of sensitive habitats across the UK were estimated to be at risk of significant harm from acidity⁸⁴. The UK Acid Waters Monitoring Network (now the UK Upland Waters Monitoring Network, UWMN) was set up to provide crucial chemical and biological data on the extent and degree of surface water acidification in the UK uplands, in particular to underpin the science linking acid deposition to water quality and to monitor the response of aquatic ecosystems to reductions in air pollution. The water chemistry and biological data provided by the UK UWMN provide datasets for the development and application of Critical Loads models which are used on a national basis for the provision of data for freshwater ecosystems under the UN-ECE Gothenburg Protocol. In 2008, the model was used to show that 25% of all freshwater sites will continue to exceed critical loads beyond 2020⁸⁵.

Likely Evolution of the Baseline without the WRMP24

- 3.5.9 Air quality in the UK has improved significantly in recent decades. Air quality objectives are being achieved for many pollutants (lead, benzene, 1,3-butadiene and carbon monoxide (CO)). However, measurements show that long-term reducing trends for NO₂ and PM₁₀ are flattening or even reversing at a number of locations, despite current policy measures. For example, emissions of PM₁₀ and PM_{2.5} have been relatively stable since 2009. The Government's aim is to reduce emissions of PM_{2.5} against the 2005 baseline by 46% by 2030, emissions of NO₂ against the 2005 baseline by 73% by 2030 and to reduce emissions of sulphur dioxide against the 2005 baseline by 88% by 2030.⁸⁶
- 3.5.10 Defra's 2019 Clean Air Strategy sets out proposals for tackling all sources of air pollution, making our air healthier to breathe, protecting nature and boosting the economy⁸⁷. This includes:

⁸³ Public Health England (2019) Review of Interventions to Improve Outdoor Air Quality and Public Health. Available online: <https://www.gov.uk/government/news/public-health-england-publishes-air-pollution-evidence-review> (Accessed 27/01/22)

⁸⁴ Defra (2017). UK plan for tackling roadside nitrogen dioxide concentrations An overview. Available online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/633269/air-quality-plan-overview.pdf [Accessed 27/01/22]

⁸⁵ UCL (undated), Provision of data on freshwater acidification and recovery for monitoring and policymaking. Available online: <https://www.ucl.ac.uk/impact/case-studies/2014/dec/provision-data-freshwater-acidification-and-recovery-monitoring-and> (Accessed 27/01/22)

⁸⁶ Defra (2019). Clean Air Strategy 2019. Available online: <https://www.gov.uk/government/publications/clean-air-strategy-2019> (Accessed 27/01/22)

⁸⁷ Defra (2019). Clean Air Strategy 2019. Available online: <https://www.gov.uk/government/publications/clean-air-strategy-2019> (Accessed 27/01/22)

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- setting a new target for the reduction of damaging deposition of reactive forms of nitrogen and review what longer term targets should be to further tackle the environmental impacts of air pollution;
- monitoring the impacts of air pollution on natural habitats and report annually;
- providing guidance for local authorities explaining how cumulative impacts of nitrogen deposition on natural habitats should be mitigated and assessed through the planning system.

Key Issues Relevant to the WRMP24

3.5.11 The key environmental, social and economic issues relevant to the WRMP24 arising from the baseline assessment for air quality are:

- The need to minimise emissions of pollutant gases and particulates to comply with air quality standards.
- The need to enhance air quality.

3.6 Climate Change

Baseline Characteristics

3.6.1 Greenhouse gases including carbon dioxide (CO₂) emitted from human actions is a major contributor to climate change. The amount of CO₂ emitted in England and the South West region between 2010 and 2019 is shown on Figure 3.17. This shows that total emissions in the South West have reduced by 27% from 35.5 MtCO₂ in 2010 to 25.8 MtCO₂ in 2019, mainly due to declines in emissions from the industry, commercial and domestic sectors. There have been periods of fluctuation within this trend, such as rises in 2012 due to economic factors and temperature variations. A similar trend is observed in the UK. On a local authority basis within the South West, Cheltenham and Plymouth had the largest decreases in emissions, with a 34% reduction in emissions in 2019 compared to 2010. On a per capita basis, the South West emitted 4.6 tCO₂ per person in 2019 which is slightly lower than 4.9 tCO₂ per person for England⁸⁸.

⁸⁸ Department for Business, Energy & Industrial Strategy (2021) 2005 2019 UK Local and Regional Carbon Dioxide Emissions – Data Tables Available online: <https://www.gov.uk/government/collections/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics> [Accessed 10/01/22].

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Figure 3.17 End User Estimates of Carbon Emissions (KtCO₂) in England and South West region 2010-2019



Notes: LULUCF (Land use, land-use change, and forestry) refers to emissions and removals of greenhouse gases resulting from direct human-induced land use such as settlements and commercial uses, land-use change, and forestry activities and as such, its effects are recorded in negative MtCO₂ in the bar graphs above.

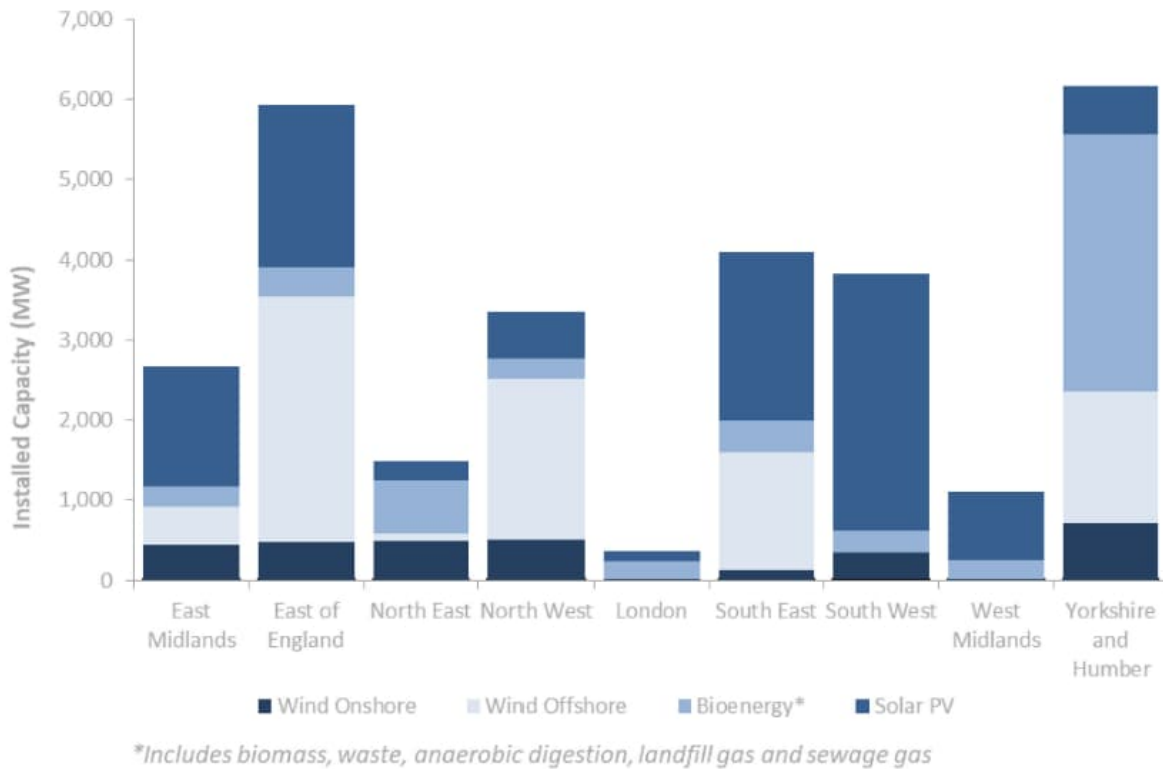
Source: Department for Business, Energy & Industrial Strategy (2021) 2005-2019 UK Local and Regional Carbon Dioxide Emissions – Data Tables Available online: <https://www.gov.uk/government/collections/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics> [Accessed 10/01/22].

- 3.6.2 Through the Climate Change Act 2008 (amended), the UK has set itself a target of reducing greenhouse gas emissions by at least 100% compared to 1990 levels by 2050 ('net zero'); and aims to fully decarbonise the UK's power system by 2035.
- 3.6.3 Increasing the amount of renewable energy generation is one response to the need to reduce CO₂ emissions. The most recent data from the Department for Business, Energy & Industrial Strategy (BEIS) shows that in 2020 renewable generation in England grew by 15% per cent from 2019. In 2020, the South West had an installed capacity of 3,947 MWe from sites generating electricity from renewable sources. This represents a substantial increase compared to the figure of 210 MWe in 2010 and is primarily due to the increase in solar power capacity. This is the fourth highest regional renewable capacity (Figure 3.18), and about 17% of the total capacity in England. The South West continues to be

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the region with the largest number of renewable sites reflecting the numerous solar PV schemes installed in Cornwall and Wiltshire⁸⁹.

Figure 3.18 Renewable capacity at the end of 2020 by English region and technology



Source: BEIS (2021) Renewable electricity in Scotland, Wales, Northern and the regions of England in 2020. Available online: <https://www.gov.uk/government/statistics/regional-renewable-statistics>

3.6.4 The State of the UK Climate 2020⁹⁰ report shows several indicators consistent with the expected effects of a warming climate, alongside evidence of considerable natural variability on annual to multi-decadal timescales. The temperature over the decade 2011-2020 was on average 0.5°C warmer than the 1981-2010 average and 1.1°C warmer than the 1961-1990 average. All the top ten warmest years since 1884 have occurred after 2002. Winters in 2011-2020 were on average 11% wetter than 1981-2010 and 19% wetter than 1961-1990. Summers were also wetter, by 15% and 17% respectively. Mean sea level around the UK has risen by about 16.5 cm since the start of the 20th century (when corrected for land movement).

⁸⁹ BEIS (2021) Renewable electricity in Scotland, Wales, Northern and the regions of England in 2020. Available online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1021774/Regional_renewable_electricity_2020.pdf and excel data spreadsheets available at <https://www.gov.uk/government/statistics/regional-renewable-statistics> [Accessed 10/01/22].

⁹⁰ Met Office (2021) State of the UK Climate 2020. Available on: <https://www.metoffice.gov.uk/research/climate/maps-and-data/about/state-of-climate> [Accessed 10/01/22]

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- 3.6.5 The latest State of the UK Climate 2021⁹¹ report contains updated figures and an updated 30-year reference period, changing this from 1981-2010 to 1991-2020. The year 2021 was 0.1°C warmer than the 1991-2020 average and the 18th warmest year since 1884, with only one year prior to 1990 being warmer than 2021. Winter and spring were both colder than the 1991-2020 average however, 2021 included the UK's 9th warmest summer and equal-third warmest autumn since 1884. The most recent decade (2012–2021) has been on average 0.2°C warmer than the 1991–2020 average and 1.0°C warmer than 1961–1990. 2021 rainfall was 95% of the 1991-2020 average and 102% of the 1961-1990 average. The most recent decade (2012–2021) has been on average 2% wetter than 1991–2020 and 10% wetter than 1961–1990 for the UK overall. Summers for the most recent decade have been on average 6% and 15% wetter for the periods 1991-2020 and 1961-1990 respectively, whereas winters have been 10% and 26% wetter.
- 3.6.6 Wessex Water is a large user of energy due to the energy needed to treat and pump water. Wessex Water takes part in the Carbon Reduction Commitment, a UK initiative for large energy users to cut their carbon footprint. The company's greenhouse gas emissions stood at 106 ktCO₂e in 2021/2022 which is ahead of the target of 110 ktCO₂e. The company has a target of 101 ktCO₂e for 2024/2025. The 2020/21 figure continues a trend of reductions that began 10 years ago and is the lowest annual operational carbon footprint since 1999/2000. Wessex Water is constantly looking for ways to reduce the carbon footprint: key examples in recent years include the preventative aspects of catchment management, extensive energy efficiency work, and investment in food waste digestion which provides electricity consumed by regulated activity⁹².

Likely Evolution of the Baseline without the WRMP24

- 3.6.7 The UKCIP⁹³ provides the following predictions on changes in climate in England (based on low and maximum emission scenarios with 10 and 90% probability). The predictions indicate that
- 2070s winter temperature: -0.1°C colder to 2.4°C warmer (low emission scenario) and 0.7°C to 4.2°C warmer (high emission scenario);
 - 2070s summer temperature: no change in temperature to 3.3°C warmer (low emission scenario) and 1.1°C to 5.8°C warmer (high emission scenario);
 - 2070s winter precipitation: 3% drier to 22% wetter (low emission scenario) and 2% drier to 33% wetter (high emission scenario); and
 - 2070s summer precipitation: 41% drier to 9% wetter (low emission scenario) and 57% drier to 3% wetter (high emission scenario).

⁹¹ Met Office (2022) State of the UK Climate 2021. Available on: State of the UK Climate 2021 - Kendon - 2022 - International Journal of Climatology - Wiley Online Library [Accessed 24/08/22]

⁹² Wessex Water (2022) Annual Performance Report 2021-22. Available online: Annual results documents | Document library | Wessex Water [Accessed 24/08/22]

⁹³ Met Office (2019). UKCP18 Factsheet: Derived projections. Available online: <https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/factsheets> [Accessed 05/05/20]

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- 3.6.8 The changes in average temperatures and rainfall as a result of climate change are likely to cause hotter, drier summers which will potentially result in:
- increased maximum summer temperatures that are likely to lead to increased thermal discomfort in buildings;
 - increased health problems in the summer, including heat related deaths and those linked to high air pollution. Elevated summer temperatures cause health problems both directly and indirectly, via elevated levels of air pollutants;
 - increased summer water shortages as summer rainfall decreases;
 - growth in summer tourism;
 - changes to the natural environment including impacts on habitats and species associated with changing temperatures and water availability (in both summer and winter).
- 3.6.9 Milder wetter winters are expected to result in:
- a reduction in the number and severity of annual frosts and snowfall, caused by the likely increased temperatures during the winter months which could lead to longer growing seasons for suitable crops and grasslands;
 - less cold weather transport disruption;
 - reduced demand for winter heating;
 - less cold weather related illnesses;
 - increased river and urban flooding, due to the increased incidence and severity of extreme rainfall events;
 - increased pressure on sewer systems with associated water quality impacts;
 - increased localised flooding as a result of pressures on the sewerage/drainage network due to exceeded capacity.
- 3.6.10 The Kyoto Protocol's first commitment period ended in 2012, which had set a legally binding target for the UK to reduce its greenhouse gas emissions by 12.5% (compared to the 1990 base year) across 2008 to 2012. The 2015 United Nations Climate Change Conference (COP 21) negotiated the Paris Agreement, a global agreement to (inter-alia) hold the increase in the global average temperature to well below 2 °C above pre-industrial levels and to increase the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development.
- 3.6.11 The UK Climate Change Act 2008 set legally binding targets for the UK to reduce greenhouse gas emissions by 100% ('net zero') by 2050, and CO₂ emissions by at least 26% by 2020, both set against a 1990 baseline. Under the requirements of the Act, the Government has set five-year carbon budgets to set out a trajectory for emissions reductions to 2050. Budgets have been set covering the periods 2008-12, 2013-17, 2018-22, 2023-27, 2028-32 and 2033-37, equivalent to 25%, 31%, 37%, 51%, 57% and 78% reductions in carbon emissions compared to 1990 levels respectively. The UK Government also aims to fully decarbonise the UK's power system by 2035.

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- 3.6.12 Wessex Water is committed to increase renewable generation and targeted an increase from 21% in 2015-2016 to 24% in 2019-20. Renewable generation in 2018-2019 was 25% which exceeded the target of 21%. In 2020-21 this stood at 26% showing a continuing upward trend in renewable energy use. Renewable energy sources used by Wessex Water include combined heat and power fuelled by sewage sludge biogas, hydropower installations, food waste digestion and solar panels.

Key Issues Relevant to the WRMP24

- 3.6.13 The key environmental, social and economic issues relevant to the Revised Draft WRMP24 arising from the baseline assessment for climate change are:
- The need to reduce greenhouse gas emissions arising from implementation of the WRMP24.
 - The need to take into account, and where possible adapt to, the current and anticipated future effects and risks of climate change.
 - The need to increase environmental resilience to the effects of climate change.

3.7 Human Environment

Baseline Characteristics

Community

- 3.7.1 There is a resident population in the Wessex Water supply region of around 2.8 million⁹⁴. The greater South West region is mainly rural, with a population of 5.66 million.⁹⁵ Over the 10-year period from 2010-2020 the South West saw the population grow by 7.56%⁹⁶.
- 3.7.2 Table 3.10 sets out population estimates (at 2020) by gender and local authority area within the Wessex Water area. The Wessex Water operational area does also include small parts of areas covered by Mendip, New Forest, North Devon and Test Valley local authorities but as these relate to less than 0.1% of the households supplied by Wessex Water, these have been excluded from Table 3.10. In some instances, Wessex Water does not supply the whole population within each local authority area, for example parts of Bournemouth, Christchurch and Poole are supplied by Bournemouth Water and parts of Bath and North East Somerset and South Gloucestershire are supplied by Bristol Water.

⁹⁴ Wessex Water (2020) *About Us*. Available online at: <https://www.wessexwater.co.uk/corporate/the-company/about-us> (accessed 10/01/22)

⁹⁵ Nomis (2022) *Labour Market Profile – South West*. Available Online at: <https://www.nomisweb.co.uk/reports/Imp/gor/2013265929/report.aspx> (accessed 10/01/22)

⁹⁶ Nomis (2022) *Labour Market Profile*. Available Online at: www.nomisweb.co.uk/reports/Imp/gor/2013265929/subreports/gor_pop_time_series/report.aspx (accessed 10/01/2022)

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Table 3.10 Population Estimate by Area and Gender

Area	Estimated Population 2020 All People	Estimated Population 2020 Male (Number)	Estimated Population 2020 Male %	Estimated Population 2020 Female (Number)	Estimated Population 2020 Female %
England	55,550,100	27,982,800	49.5%	28,567,300	50.5%
South West	5,659,100	2,784,900	49.2%	2,874,200	50.8%
Dorset Council	379,800	185,700	48.9%	194,100	51.1%
South Somerset District Council	168,700	82,700	49.0%	86,000	51.0%
North Somerset Council	215,600	105,000	48.7%	110,600	51.3%
Somerset West and Taunton Council	155,400	75,300	48.5%	80,100	51.5%
Sedgemoor District Council	123,400	60,800	49.2%	62,700	50.8%
Bath and North East Somerset Council	196,400	97,700	49.7%	98,700	50.3%
South Gloucestershire Council	287,800	142,500	49.5%	145,400	50.5%
Wiltshire Unitary Authority	504,100	249,200	49.4%	254,900	50.6%
Bournemouth, Christchurch and Poole (BCP)	397,000	197,700	49.8%	199,300	50.2%
<i>Estimate for Wessex Area (noting exclusions)</i>	<i>2,428,200</i>	<i>1,186,600</i>	<i>49.3%</i>	<i>1,231,800</i>	<i>50.7%</i>

Source: Nomis (2022) *Labour Market Profile ONS Population Estimate*. Available Online at: <https://www.nomisweb.co.uk/reports/lmp/gor/2013265929/report.aspx> (accessed 24/08/2022)

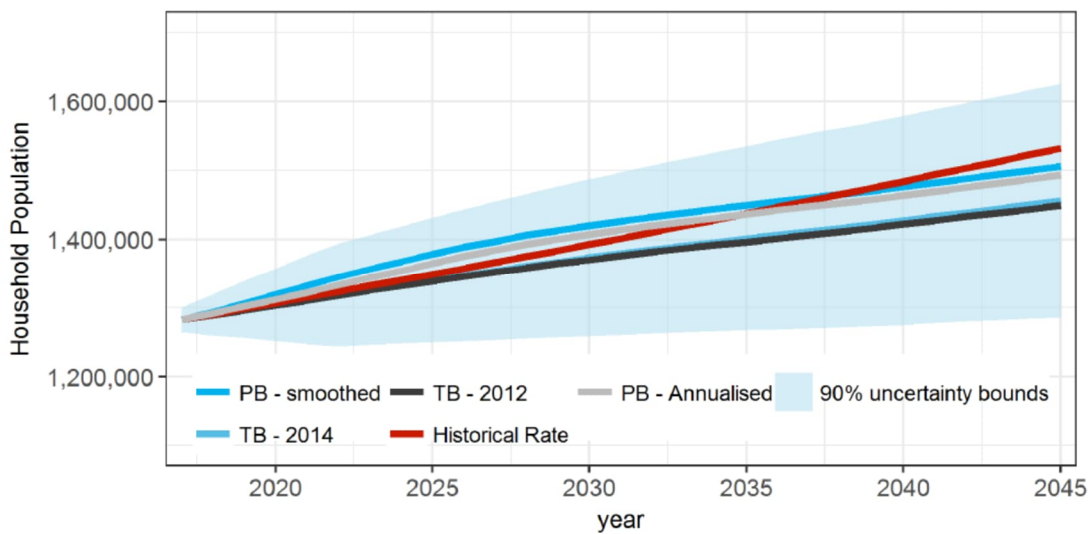
3.7.3 The latest population projections are trend based using 2018 population estimates. The South West region is projected to increase from 5,599,735 in 2018 to 5,982,678 in 2028 and 6,387,785 in 2043 (representing the end of the 25 year projection period). This is a projected increase of 14%.¹ For the Wessex area the population is projected to increase

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from 2,453,551 in 2018 to 2,602,141 in 2028 and 2,752,015 in 2043. This is a projected increase of 12.2%.⁹⁷

3.7.4 Wessex Water used population projection information to inform estimates of future water demand for the current WRMP. Reflecting UKWIR guidance and changing government population projections with different base years (2012 and 2014), and whether trend or plan based, WRMP19 includes a range of resulting projections out to 2045, which is presented in Figure 3.19.

Figure 3.19 Wessex Water WRMP19 Population Projections



Source: Wessex Water WRMP2019

3.7.5 Table 3.11 shows projected changes in population by age for the South West over the period 2018 to 2043. It shows an increase in residents aged 15-19 of 10.6% but also highlights that the proportion of the population in older age groups is increasing. Between 2018 and 2043, the population aged between 70 and 74 increases by 21.8%, the population aged 75 to 79 increases by 73.3% and the population aged between 80 and 84 is forecast to increase by 83.3%. The population aged 90+ is expected to increase by 109.0%.

⁹⁷ ONS (2020) *Population projections for local authorities* [for population projection]. Available online at www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/datasets/localauthoritiesinenglandtable2 [accessed 10/01/2022]

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Table 3.11 Projected Change in Population by Age in the South West

Age Group	2018 Projections	2043 Projections	Total Change	% Change
0-4	296,357	314,070	17,713	6.0
5-9	325,087	315,855	-9,232	-2.8
10-14	307,217	319,247	12,030	3.9
15-19	304,286	336,584	32,298	10.6
20-24	339,333	348,784	9,451	2.8
25-29	336,927	351,642	14,715	4.4
30-34	327,070	370,436	43,366	13.3
35-39	327,399	350,086	22,687	6.9
40-44	311,220	335,550	24,330	7.8
45-49	373,652	369,230	-4,422	-1.2
50-54	402,594	393,459	-9,135	-2.3
55-59	379,723	390,506	10,783	2.8
60-64	338,670	393,446	54,776	16.2
65-69	332,624	366,792	34,168	10.3
70-74	333,053	405,781	72,728	21.8
75-79	225,441	390,720	165,279	73.3
80-84	167,403	306,809	139,406	83.3
85-89	107,432	194,509	87,077	81.1
90+	64,247	134,278	70,031	109.0

Source: ONS (2020)

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/datasets/localauthoritiesinenglandtable2>

Health

3.7.6 Life expectancy is used as a broad measure of the health of an area. In general, the health of the population is good for the UK with the life expectancy at birth for both men and women having increased significantly in recent decades. However, in the latest data covering the period 2018-20 there has been a slight lowering in life expectancy, reflecting

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mortality data linked to the Covid-19 pandemic. Life expectancy for the latest period stands at 79.04 years for males and 82.86 years for females having reached 79.37 and 83.06 respectively in 2017-19. The figures for 2018-20 are still far higher than those for 1980-82 of 70.81 and 76.81 respectively⁹⁸.

3.7.7 In the South West the average life expectancy at birth for the period 2018-2020 was 80.31 years for men and 84.07 years for women, which is above the average for all of England (79.40 and 83.14 respectively).⁹⁹ The region therefore has one of the highest life expectancies across England. The 2011 Census reported that 8.3% of people in the South West said they had an activity limiting health problem or disability that limited their activities a little and 10.2% said they had a health problem or disability that limited their activities a lot. The respective figures for England were 8.3% and 9.3%.¹⁰⁰

3.7.8 Water is a vital resource that is managed responsibly to ensure both that people have access to affordable and safe drinking water and sanitation.

Economy and Employment

3.7.9 The proportion of economically active people within the South West region during August-October 2021 was 80.7%, compared to 78.8% within the UK (see Table 3.12). Economically active in this context is defined as those persons of working age who are employed or looking to be employed. When compared to the same period in 2016 there is no change in the percentage of people economically active within the South West area, compared to a 0.5% increase within the UK over the previous five years. These figures show that the South West area is performing better than the UK in terms of employment.

Table 3.12 Employment and Unemployment (2016 and 2021)

	August 2016 – October 2016			August 2021 – October 2021				Difference		
	South West (Numbers)	South West (%)	UK (Numbers)	UK (%)	South West (Numbers)	South West (%)	UK (Numbers)	UK (%)	% Change South West	% Change UK
Economically Active †	2,819,000	80.7	33,407,000	78.3	2,858,000	80.7	33,929,000	78.8	+0.0	+0.5

⁹⁸ ONS (2021) National life tables – life expectancy in the UK: 2018 to 2020. <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/lifeexpectancies/bulletins/nationallifetablesunitedkingdom/2018to2020> [accessed 24/08/22]

⁹⁹ ONS (2021) Life expectancy for local areas of the UK: between 2001 to 2003 and 2018 to 2020 <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/bulletins/lifeexpectancyforlocalareasoftheuk/between2001to2003and2018to2020> (accessed 10/01/22)

¹⁰⁰ ONS (2015) Disability in England and Wales: 2011 and comparison with 2001 <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/disability/articles/disabilityinenglandandwales/2013-01-30#activity-limitations-across-english-regions-and-wales> (accessed 10/01/22)

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	August 2016 – October 2016				August 2021 – October 2021				Difference	
	South West (Numbers)	South West (%)	UK (Numbers)	UK (%)	South West (Numbers)	South West (%)	UK (Numbers)	UK (%)	% Change South West	% Change UK
In employment †	2,718,000	77.7	31,794,000	74.4	2,771,000	78.2	32,506,000	75.5	+0.5	+3.8
Unemployed §	101,000	3.6	1,613,000	4.8	87,000	3.0	1,423,000	4.2	-0.6	-0.6
Economically Inactive ‡	638,000	19.3	8,907,000	21.7	642,000	19.3	8,746,000	21.2	+0.0	-0.5

Source: NOMIS 2022 – Labour Market Profile – South West

† - numbers are for those aged 16 and over, % are for those aged 16-64;

‡ - numbers and % are for those aged 16-64

§ - numbers and % are for those aged 16 and over. % is a proportion of economically active

- 3.7.10 The South West had a GVA per head of £23,499 in 2017 which was below the UK figure of £27,555 but ahead of the North East (£20,129), Yorkshire and the Humber (£21,426), East Midlands (£21,84) and West Midlands (£22,713) region. The region had a GVA of £1.3bn.¹⁰¹
- 3.7.11 At 23,829 square kilometres, the South West region covers nearly ten per cent of the UK's land mass with almost three quarters of its entire area (1.8 million hectares) committed to agricultural use. Within this area there are over 25,000 commercial 'agricultural holdings' of all shapes and sizes ranging from small family farms to multiple thousand-acre estates and agri-enterprises.
- 3.7.12 Table 3.13 shows workforce jobs by sector for the South West and UK. The distribution of employment between sectors across the region is broadly similar to the UK as a whole. The percentage of employment in 'Accommodation and food service activities' is slightly higher in the region (8.3%) when compared to the UK (6.8%) whilst for 'Agriculture, forestry and fishing' the regional percentage (1.9%) is almost twice as high as the national figure (1.0%). The percentage of employment in 'Real estate activities' is also slightly higher in the region (2.5%) when compared to the UK (1.8%). Industries that have a lower percentage of employment in the region include 'Information and communication', which provides 3.5% of total employment in the region compared to 4.3% in the UK. The percentage of employment in 'Water supply, sewerage, waste management and remediation' activities is broadly the same for the region (0.8%) as the UK (0.7%).

¹⁰¹ ONS (2018) Regional economic activity by gross value added (balanced), UK: 1998 to 2017. Available via:

<https://www.ons.gov.uk/economy/grossvalueaddedgva/bulletins/regionalgrossvalueaddedbalanceduk/1998to2017> (accessed 10/01/22)

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Table 3.13 Employment by Industry

Industry	South West		UK	
	Number	%	Number	%
A : Agriculture, forestry and fishing	55,000	1.9	364,000	1.0
B : Mining and quarrying	3,000	0.1	58,000	0.2
C : Manufacturing	226,000	7.7	2,526,000	7.2
D : Electricity, gas, steam and air conditioning supply	12,000	0.4	143,000	0.4
E : Water supply; sewerage, waste management and remediation activities	24,000	0.8	236,000	0.7
F : Construction	200,000	6.8	2,225,000	6.3
G : Wholesale and retail trade; repair of motor vehicles and motorcycles	406,000	13.7	4,800,000	13.7
H : Transportation and storage	124,000	4.2	1,803,000	5.1
I : Accommodation and food service activities	244,000	8.3	4,403,000	6.8
J : Information and communication	103,000	3.5	1,521,000	4.3
K : Financial and insurance activities	72,000	2.4	1,089,000	3.1
L : Real estate activities	73,000	2.5	634,000	1.8
M : Professional, scientific and technical activities	241,000	8.2	3,221,000	9.2
N : Administrative and support service activities	244,000	8.3	3,065,000	8.7
O : Public administration and defence; compulsory social security	152,000	5.1	1,621,000	4.6
P : Education	251,000	8.5	2,955,000	8.4

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Industry	South West		UK	
Q : Human health and social work activities	375,000	12.7	4,584,000	13.0
R : Arts, entertainment and recreation	78,000	2.6	955,000	2.7
S : Other service activities	65,000	2.2	864,000	2.5
T : Activities of households as employers; undifferentiated goods-and services-producing activities of households for own use	4,000	0.1	62,000	0.2
Total	2,953,000	100.0	35,131,000	100.0

Source: NOMIS 2022 – Labour Market Profile – South West

3.7.13 In March 2020, Wessex Water employed 2,547 employees. In 2020, the number of female employees in the workforce was 21% (a decrease of 1% from the previous year), while in leadership roles the number of female managers was also 21% (an increase from the previous year).¹⁰²

Transport

3.7.14 In 2020, 27.8 billion vehicle miles of traffic were travelled across the 31.4 thousand miles of roads in the South West. Journeys on ‘A’ roads accounted for 11.6 billion vehicle miles, journeys on ‘C’ roads accounted for 11.8 billion vehicle miles, whilst motorways accounted for 4.4 billion vehicle miles.¹⁰³ However, these figures reflect the impact of the Covid-19 pandemic and until 2019 the number of journeys had increased year on year from 2010 reflected by the figure of 36.1 billion vehicle miles in 2019 compared to 30.7 billion in 2010 (which is still much higher than the 2020 figure).

3.7.15 Vehicle movements are essential to everyday operations within Wessex Water. Vehicle movements accounted for 35% of the company’s total carbon dioxide emissions in 2018.¹⁰⁴ In 2021-22, vehicle transport accounted for 19.5% of Wessex Water’s scope one emissions and 9.8% of their gross operational emissions¹⁰⁵.

¹⁰² Wessex Water (2020) Wessex Water Services Limited gender pay gap report 2020. Available at: Diversity and inclusion | Wessex Water (Accessed 24/08/22)

¹⁰³ Department for Transport (2021) *Road Traffic Statistics*. Available at: <https://roadtraffic.dft.gov.uk/regions/1> (accessed 24/08/2022)

¹⁰⁴ Wessex Water (2019) : Sustainability indicators and accounting 2017-18 Available at: <https://www.wessexwater.co.uk/corporate/sustainability/sustainability-at-wessex-water/indicators> (accessed 10/01/2022)

¹⁰⁵ Wessex water (2022) Annual Performance Report Tables 2021-22 Available at: Annual review | Wessex Water [accessed 24/08/22]

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Tourism and recreation

- 3.7.16 Tourism contributed £100.8bn towards England's economy in 2019. In terms of spend, visitors from the USA, China, Germany and France spent the most. Overall spend in the South West on tourism was £10.4bn (10.3% of total spend in England).¹⁰⁶ The Covid-19 pandemic has impacted on the number of visits and spend from tourism in 2021 and 2022.
- 3.7.17 With specific regard to water resources, large seasonal fluxes in tourist numbers create additional demand on water resources in summer months when demand is already at its highest.
- 3.7.18 Wessex Water owns or leases many sites and landholdings, ranging from small pumping stations to large treatment works and reservoirs, amounting to nearly 3,000 ha. Wessex Water's reservoirs and lakes continue to provide many opportunities for access and recreation in the West Country, including fishing, walking, water-skiing, sailing and birdwatching. In 2020 there was an increase in visitors to Wessex Water's main public sites¹⁰⁷. Wessex Water continues to focus on inclusive access at its fisheries and other key visitor sites and has invested in access audits on eight of its sites, involving an assessment of facilities such as paths, information boards, parking and benches, with reference to the best practice standards applicable to the site's landscape context.

Housing

- 3.7.19 Wessex Water has a statutory duty to provide water for new development and is required to accommodate the growth plans set out by local and national government in its area. Wessex Water has forecasted the increase in dwellings within its area to 2045 and the anticipated change is shown in Figure 3.20 below.¹⁰⁸ The decline in local authority housing trajectory and annualised requirement reflects the period covered by plans (which cover 15 years and largely conclude by 2030); in reality, it is expected that demand will continue (and which will then be reflected in future adopted local plans).

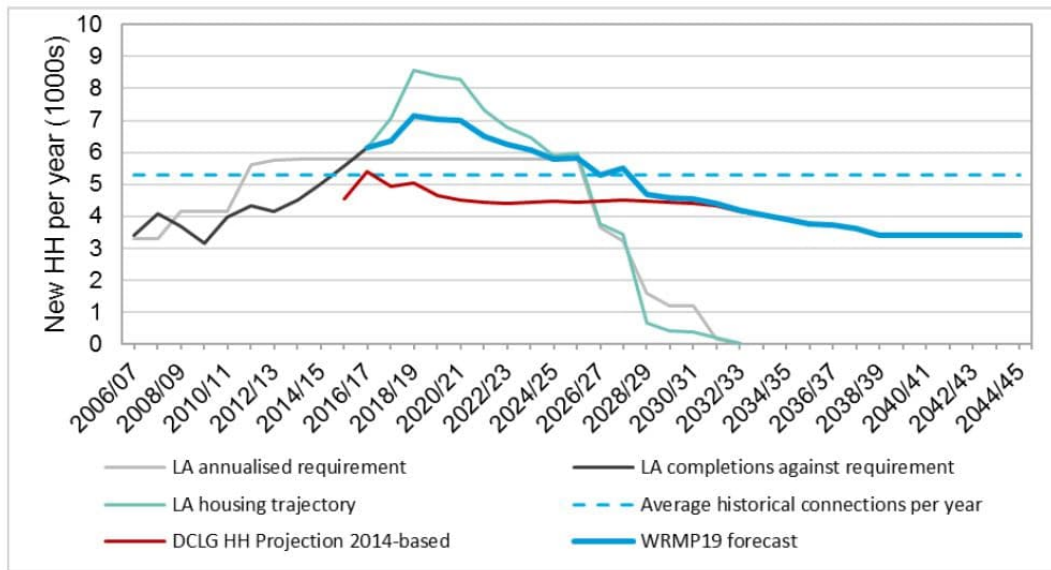
¹⁰⁶ Visit Britain (2019) Key Facts & trends 2019. Available via: <https://www.visitbritain.org/value-tourism-england> (accessed 24/08/22)

¹⁰⁷ Wessex Water (2021) Wessex Water – Conservation, Access and Recreation – 2020-21

¹⁰⁸ Wessex Water (2019) *Final water resources management plan*. Available at: <https://www.wessexwater.co.uk/environment/managing-our-impact/management-plan> (accessed 6th May 2020)

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Figure 3.20 New households per year compared to past completion rates and the WRMP19 forecast



Source: Wessex Water WRMP2019

Indices of Deprivation

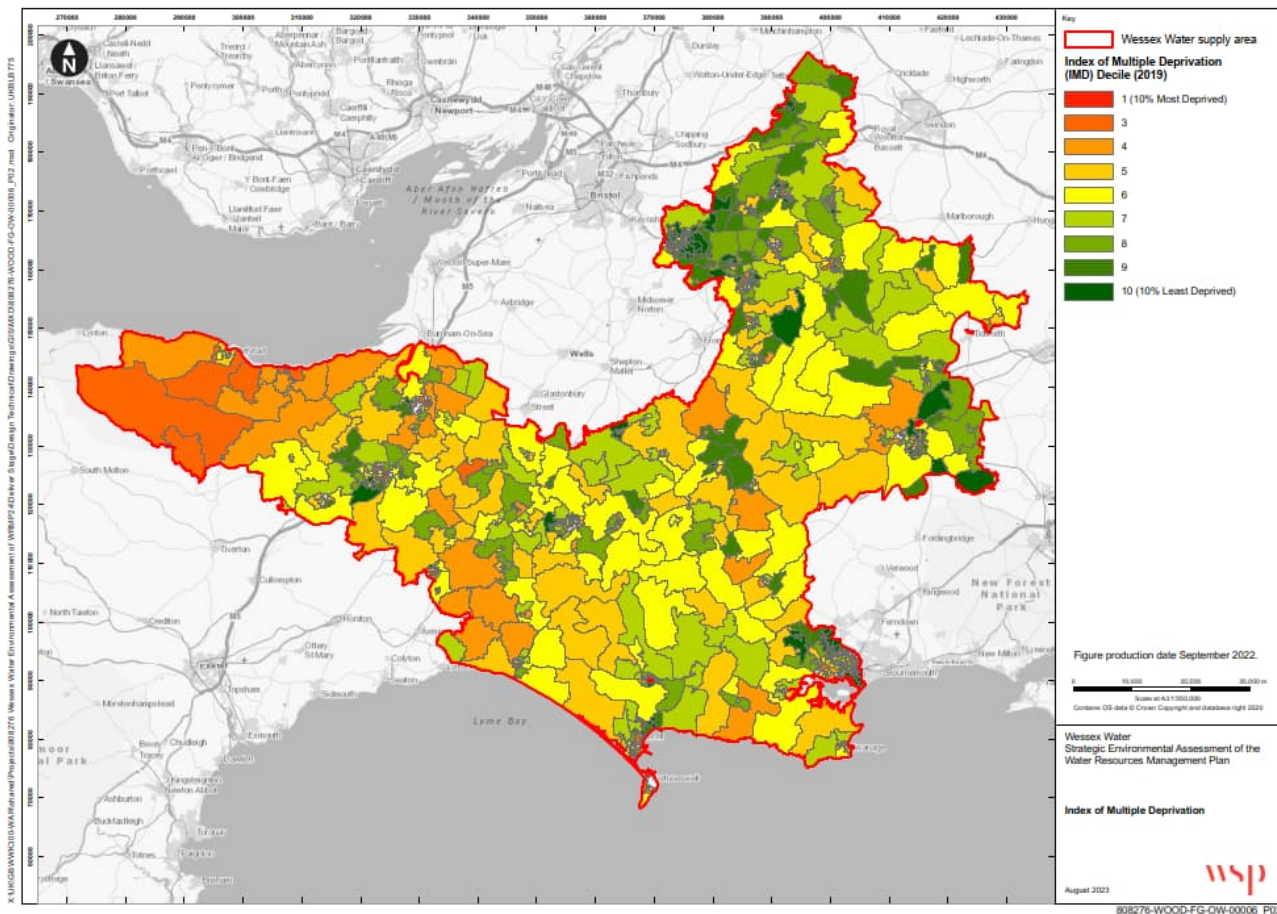
- 3.7.20 The English Indices of Deprivation (IMD) measure relative levels of deprivation in 32,844 small areas or neighbourhoods, called Lower-layer Super Output Areas (LSOAs), in England. It considers a range of factors: (income, employment, education, health, crime barriers to housing and services and quality of the living environment).
- 3.7.21 Deciles are calculated by ranking the 32,844 LSOAs in England from most deprived to least deprived and dividing them into 10 equal groups. Decile 1 represents the most deprived 10 per cent of areas nationally and decile 10 represents the least deprived 10 per cent of areas nationally.¹⁰⁹
- 3.7.22 Figure 3.21 shows the LSOAs within the Wessex Water area and the decile within which they sit. The majority of LSOAs are in the least deprived deciles. However, all local authorities in the area (with the exception of South Gloucestershire) have at least one LSOA within decile 1.

¹⁰⁹ Ministry of Housing, Communities and Local Government (2019) *The English Indices of Deprivation*

Research report. Available online at: <https://www.gov.uk/government/publications/english-indices-of-deprivation-2019-research-report> (accessed 11/01/22)

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Figure 3.21 Deprivation in the Wessex Water area



- 3.7.23 Levels of deprivation, particularly income deprivation, affect the ability of customers to pay for water and may also impact on total water usage.
- 3.7.24 For those on low incomes, Wessex Water's tailored assistance programme (tap) is able to offer support to meet their own financial circumstances. For example, in 2019/20:
- an estimated 43,000 customers have received help in paying ongoing charges and repaying debt while receiving practical help to reduce water and energy bills;
 - approximately 13,000 customers were in receipt of Wessex Water's main social tariff 'Assist' which provides discounts of up to 90% off water charges for those in the greatest financial hardship; and
 - approximately 17,000 customers received 20% discount after being identified as "*pensioners on the lowest incomes*".
- 3.7.25 Wessex Water also liaises with a growing number of community-based organisations outside the debt advice sector and uses geographical mapping to engage with customers who are typically much harder to reach and likely to be some of the most vulnerable. The

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company has launched five new projects in hard-to-reach areas such as deprived housing estates.¹¹⁰

Likely Evolution of the Baseline without the WRMP24

3.7.26 There are likely to be a range of changes to the existing baseline situation:

- The latest population projections using 2018 population estimates show that the population in the Wessex Water area is projected to increase from 2,453,551 in 2018 to 2,602,141 in 2028 and 2,752,015 in 2043. This is a projected increase of 12.2% by 2043.
- There is projected to be an increase in people aged over 60 and over. The proportion of people with limiting health problems or disability that limit their activities in the region is the same as that in England. This suggests that while the population will age it will remain active so continued provision of opportunities for recreation will be important.
- There will be a continued and substantial growth in the demand for housing, the number of dwellings completed, and the number of households formed.
- Levels of economic activity are high in the region, relative to the UK. Agriculture is an important sector in the local economy and agriculture is likely to remain an important sector in land use terms. Accommodation and food service activities are also important sectors.
- Tourism is an important sector in the region and is likely to remain so, seasonality is likely to remain a feature of the industry.
- There are pockets of deprivation within the areas supplied by Wessex Water and there will be a continued need to help manage affordability for customers.

Key Issues Relevant to the WRMP24

3.7.27 The key environmental, social and economic issues relevant to the WRMP24 arising from the baseline assessment for the human environment are:

- The need to ensure that water supplies remain affordable, in particular for deprived or vulnerable communities.
- The need to ensure that the WRMP24 does not have an adverse economic impact and benefits are maximised.
- The need to ensure continuing safe, reliable and resilient provision of water and sewerage services to maintain health and wellbeing of the population.
- The need to ensure water quantity and quality is maintained for other users including tourists, recreational users and other users such as farmers.

¹¹⁰ Wessex Water (2020). Available on line at: <https://www.wessexwater.co.uk/corporate/customer-service/our-commitment/affordability> (accessed 11/01/22)

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- The need to accommodate an increase in population, households, dwellings and development associated with other uses that might impact on demand for water whilst ensuring the continued provision of essential services including water supply.
- The need to ensure a balance between different aspects of the built and natural environment that will help to provide opportunities for local residents and tourists for access to green infrastructure and the natural and historic environment, as well as protecting and enhancing recreational resources.
- The need to ensure that sites of nature conservation importance, heritage assets, water resources, important landscapes and public rights of way contribute to recreation and tourism opportunities and subsequently health and wellbeing and the economy.

3.8 Material Assets and Resource Use

Baseline Characteristics

Assets

3.8.1 Wessex Water supply some 275 MI/d of drinking water to 1.3 million people across the south west and treat 863 MI/d of sewage from 2.8 million people. To facilitate this Wessex Water operates a large network of infrastructure assets including ^{Error! Bookmark not defined.111};

- 180 water sources and water treatment works;
- 200 booster pumping stations;
- 300 service reservoirs and water towers;
- 11,945 km of water mains;
- 34,820 km of sewers;
- 409 sewage treatment works; and
- 1,660 sewage pumping stations.

3.8.2 An integrated water supply grid project was undertaken between 2010 and 2018. It comprised more than 50 individual schemes across Somerset, Wiltshire and Dorset and following its completion, allows the redistribution of surplus water to where it is needed. This project included 200 km of new trunk mains, 24 refurbished or new pumping stations and 12 new storage tanks with a total investment of £230 million¹¹². It has enabled Wessex Water to meet the existing and forecast demand for water (to 2045) without the need to develop new water resources.

¹¹¹ Wessex Water website. <https://www.wessexwater.co.uk/services/water/water-networks> and <https://www.wessexwater.co.uk/services/sewerage/sewerage-networks> (Accessed 24/08/22)

¹¹² Wessex Water website. <https://www.wessexwater.co.uk/services/water/water-supply-grid> (Accessed 11/01/22)

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- 3.8.3 Wessex Water is investing nearly £100 million to upgrade the sewerage network to meet ongoing and future development¹¹³. This includes:
- upgrade of the sewerage infrastructure at Somerset – Burnham-on-Sea to help improve the bathing water quality of Burnham Jetty, completed in 2019 (investing £39 million); and
 - new 6.5km sewer in north Bristol to ensure that sewerage system copes with future development, to be completed in spring 2023 (investing £55 million).

Water Demand

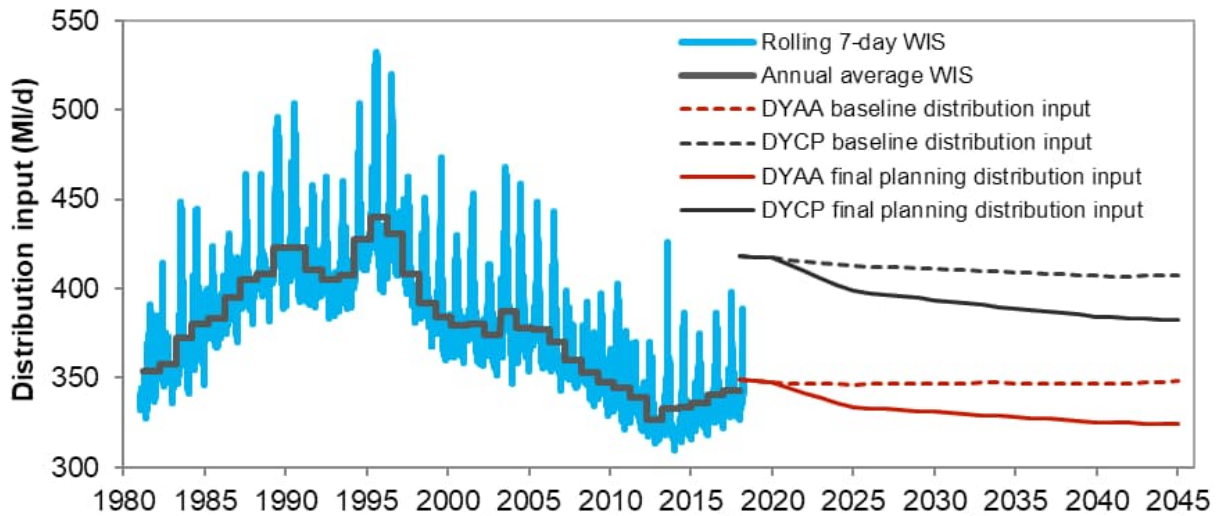
- 3.8.4 Wessex Water operate and maintain over 80 water sources. The majority (75%) of the water abstracted by Wessex Water comes from groundwater sources. Important aquifers are located under Salisbury Plain, the southern Cotswolds and the Dorset Downs. The remainder of the water supply (25%) comes from impounding reservoirs located in Somerset, which primarily capture surface runoff from Exmoor and the Quantock Hills. The supply area is operated as a single water resource zone (WRZ). Wessex Water also receives imports of potable water from Bristol Water (11.7 MI/d annual average), Thames Water (0.01 MI/d annual average), South West Water (1.31 MI/d annual average), Veolia Water (2.92 MI/d annual average) and Southern Water (0.33 MI/d). This accounts for an annual average input of 16.27 MI/d and approximately 2% of Wessex Water's distribution input. Bulk supply exports of potable water include to Bristol Water (1.13 MI/d annual average) and Scottish and Southern Electric (0.35 MI/d annual average).
- 3.8.5 Since 1995 there has been a long-term steady decline in water demand in the Wessex Water area (Figure 3.22). This has resulted from: leakage reduction; customers switching to a metered supply (the proportion of metered households has increased from less than 10% to over 69% in 2021-22); and more efficient use of water in homes and businesses¹¹⁴.

¹¹³ Wessex Water website. <https://www.wessexwater.co.uk/services/sewerage/schemes>. (Accessed 11/01/22)

¹¹⁴ Wessex water (2022) Annual Performance Report Tables 2021-22 Available at: Annual review | Wessex Water [accessed 24/08/22]

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Figure 3.22 Wessex Water long term water demand



Notes: WIS- Water into supply; DYAA - Dry year annual average; DYCP - Dry year critical period
 Source: Wessex Water (2019). Final Water Resources Management Plan 2019. Available online: <https://www.wessexwater.co.uk/environment/water-resources/management-plan> (Accessed 11/01/22)

3.8.6 In 2021-22 Wessex Water reported per capita water consumption of 144.9 litres per person (l/p/d) which is lower than 2020-21, but still higher than years prior to this¹¹⁵. In 2017-18, 2018-19, 2019-20, per capita water consumption in the Wessex Water area was 135.9, 139.3 and 138.3 l/p/d respectively. In comparison, the average water use for England and Wales was 141, 143 and a 142 l/p/d over the same period¹¹⁶.

3.8.7 There is a difference between metered and non-metered water usage, with metered water usage in the Wessex Water area in 2021-22 being 135 l/p/d¹¹⁷, which is below the 2020-21 average for England and Wales (139 l/p/d)¹¹⁸. The non-metered water usage levels in the Wessex Water area in 2021-22 was 162 l/p/d, lower than the 2021-21 average for England and Wales which was 183 l/p/d. 2021-22 averages are not yet available. This confirms that on average, less water is used in households with a meter compared to ones without.

Leakage

3.8.8 Leakage levels¹¹⁹ are affected by a number of factors including the length, age and condition of the water mains network as well as weather conditions. The change in climate to hotter, drier summers, combined with a growing population means water resources need to be managed more efficiently.

¹¹⁵ Wessex Water (2022) Annual Performance Report 2021-2022 and Annual Reports Available online: Annual results documents | Document library | Wessex Water (Accessed 24/08/22)

¹¹⁶ Discover Water (2022) The amount we use. Available online: <http://www.discoverwater.co.uk/amount-we-use> (Accessed 11/01/22)

¹¹⁷ Wessex Water (2022) Annual Performance Report 2021-2022 and Annual Reports Available online: Annual results documents | Document library | Wessex Water (Accessed 24/08/22)

¹¹⁸ Discover Water (2022) The amount we use. Available online: <http://www.discoverwater.co.uk/amount-we-use> (Accessed 25/08/22)

¹¹⁹ Leakage - The water lost between the treatment works and the customer.

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3.8.9 Leakage in the Wessex Water supply area has decreased significantly since mid-1990's. Figure 3.23 shows how leakage has reduced since 2015-16. In 2021-22 Wessex Water reduced leakage to 63.3MI/d, a 10.8% reduction from the baseline, exceeding the target of a 3.9% reduction¹²⁰. From 2020 to 2025 Wessex Water aim to reduce leakage by a further 15%. The company currently spend £16 million a year on managing and reducing leakage and a further £12 million each year replacing older water mains¹²¹.

Figure 3.23 Wessex Water leakage volumes (MI/d)



Source: Wessex Water (2020) Annual Review Summary 2019-20. Available online: <https://www.wessexwater.co.uk/corporate/sustainability/sustainability-at-wessex-water/indicators> (Accessed 11/01/22)

3.8.10 A pipe burst is the most common cause of loss of water and water supply. The number of Wessex Water pipe bursts rose in 2020-21 compared to previous years with 178 pipe bursts per 1,000km of pipe recorded compared to 161 in 2017-18, 162 in 2018-19 and 148 in 2019-20. As shown in Table 3.14, this is notably higher than the same figures for England and Wales except for 2018-19 when the number pipe bursts dropped below the national figure¹²².

Table 3.14 Number of pipe bursts in Wessex Water pipe network (per 1,000 km of pipe)

Area	2017-18	2018-19	2019-20	2020-21
England and Wales Average	159	172	137	154
Wessex Water	161	162	148	178

Source: Discover Water (2022). Number of pipe (main) bursts. Available online at: <http://www.discoverwater.co.uk/loss-of-supply> (Accessed 24/08/22)

3.8.11 Sewer flooding is unpleasant and distressing and the worst situation is where properties become flooded. In 2021-22 the number of internal sewer flooding incidents was 1.43 incidents per 10,000 properties compared to Wessex Water's target of 1.63 incidents per 10,000 properties for the period. Table 3.15 shows the number of sewer flooding incidents in the Wessex Water area between 2015 and 2022. The number of incidents has fluctuated over the period with an overall slight increase in the number from 2015-16.

¹²⁰ Wessex Water (2022) Annual Performance Report 2021-2022 and Annual Reports Available online: Annual results documents | Document library | Wessex Water (Accessed 24/08/22)

¹²¹ Wessex Water (2019). Final Water Resources Management Plan 2019. Available online: <https://www.wessexwater.co.uk/environment/water-resources/management-plan> (Accessed 11/01/22)

¹²² Discover Water (2022). Number of pipe (main) bursts. Available online at: <http://www.discoverwater.co.uk/loss-of-supply> (Accessed 11/01/22)

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Variations in these figures are likely due to the numerous factors that can cause a sewer to flood, with blockages becoming a more frequent cause. Also, changes in climate resulting in heavier, more intense rainfall can overwhelm the sewer and drainage system. Whilst newer systems keep drainage separate from sewer systems, in locations such as cities these systems are often combined. Pressure on the sewerage/drainage system also poses a risk of more frequent localised flooding as a result of exceeding network capacity¹²³.

Table 3.15 Number of sewer flooding incidents per 10,000 properties in Wessex Water area

Year	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Number of sewer flooding incidents per 10,000 properties	1.36	1.20	1.21	1.43	1.16	1.41	1.43

Source: Wessex Water (2022) Annual Performance Report 2021-2022 and Annual Reports Available online: [Annual results documents | Document library | Wessex Water](#) (Accessed 24/08/22)

Water Efficiency

- 3.8.12 Wessex Water is committed to helping customers reduce their water use as part of the company’s efforts to operate a sustainable water supply and wastewater business. In 2021-22 1.4 megalitres per day (Ml/d) were saved. However this is below the targeted reduction of 2Ml/d.¹²⁴ Although efficiency measures have reduce reduced consumption in recent years, in 2020-21 Wessex Water reported per capita water consumption of 144.9 litres per person (l/p/d) which is higher than previous years.¹²⁵
- 3.8.13 Wessex Water’s water efficiency strategy includes domestic retrofit schemes, water efficiency community fund and enhanced community engagement. Since the launch of the Home Check Programme in September 2016, nearly 22,000 visits were arranged to customer properties to fit water saving devices, fix simple plumbing leaks and offer tailored behavioural advice. About 47,400 water saving devices were installed, saving an average of 43.89 l/day per household and 1 Ml in total across the Wessex Water region¹²⁶. However, during the Covid-19 pandemic the number of home visits conducted has been severely impacted. Additionally, Wessex Water actively engages with educational settings but visits to schools were also impacted with only 10% of the usual audiences visited.¹²⁷ Other community engagement actions include the Money Back guarantee scheme which encourages customers to switch to a meter.

¹²³ Wessex Water (2022) Annual Performance Report 2021-2022 and Annual Reports Available online: Annual results documents | Document library | Wessex Water (Accessed 24/08/22)

¹²⁴ Ibid.

¹²⁵ Ibid.

¹²⁶ Wessex Water website. <https://www.wessexwater.co.uk/corporate/news/latest-news/home-check-visits-save-a-million-litres-of-water> (Accessed 11/01/22)

¹²⁷ Wessex Water (2021) Annual Performance Report 2020-2021 and Annual Reports Available online: <https://www.wessexwater.co.uk/corporate/strategy-and-reports/performance> (Accessed 11/01/22)

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Energy Use

- 3.8.14 The South West of England is a relatively high producer and consumer of energy. Total energy consumption in the region was 119,696 Gigawatt hours (GWh) in 2019, about 9.8% of the total England figure. This represents a decrease of 9% since 2005 (131,314 GWh). Over the same period, total England energy consumption has decreased by 15%. There is an even distribution of energy consumption in the South West across the Industrial and Commercial sector (30%), Domestic sector (34%) and Transport sector (36%), a split which is also similar to that for England¹²⁸.
- 3.8.15 To supply drinking water and remove and treat wastewater requires energy. Topography and volumes can increase or decrease this energy demand further. While electricity used by Wessex Water increased between 1990 and 2010, mainly due to tighter sewage treatment standards, Wessex Water has now halted this trend, largely through coordinated energy efficiency work. This is supported by detailed energy consumption information, analysed through the company's energy data hub, that reveals sites using too much electricity and in turn helps focus corrective measures. Electricity use was reduced in 2020-21 compared to in 2019-20 due to benign weather conditions.¹²⁹
- 3.8.16 Figure 3.24 shows that Wessex Water's electricity demand produced from renewable sources has been above the regulatory target. Although there have been fluctuations there is a general trend of an increase in performance. In 2018-19 the figure stood at 25%, in 2019-20 this stood at 26%¹³⁰ and in 2020-21 this increased to 28%¹³¹. This energy is generated on Wessex Water sites. Renewable energy sources include electricity from combined heat and power fuelled by sewage sludge biogas; electricity from hydropower installations and electrical output of food waste digestion and solar power. Wessex Water set up a business unit (GENeco) in 2009 to undertake sludge treatment and to maximise Wessex Water's generation of renewable energy.

¹²⁸ Department for Business, Energy and Industrial Strategy (2021) Total final energy consumption at regional and local authority level: 2005 to 2019. Available online: <https://www.gov.uk/government/statistics/total-final-energy-consumption-at-regional-and-local-authority-level-2005-to-2019> (accessed 11/01/22)

¹²⁹ Wessex Water (2022) Annual Performance Report 2021-2022 and Annual Reports Available online: Annual results documents | Document library | Wessex Water (Accessed 24/08/22)

¹³⁰ Wessex Water (2020) Annual Review Summary 2020. Available online: <https://www.wessexwater.co.uk/corporate/sustainability/sustainability-at-wessex-water/indicators> (Accessed 12/01/22)

¹³¹ Wessex Water (2021) Annual Review Summary 2021. Available online: <https://www.wessexwater.co.uk/corporate/strategy-and-reports/performance/annual-results-2021> (Accessed 11/01/22)

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Figure 3.24 Wessex Water total electricity demand generated from renewable sources (2015/16 to 2019/20)

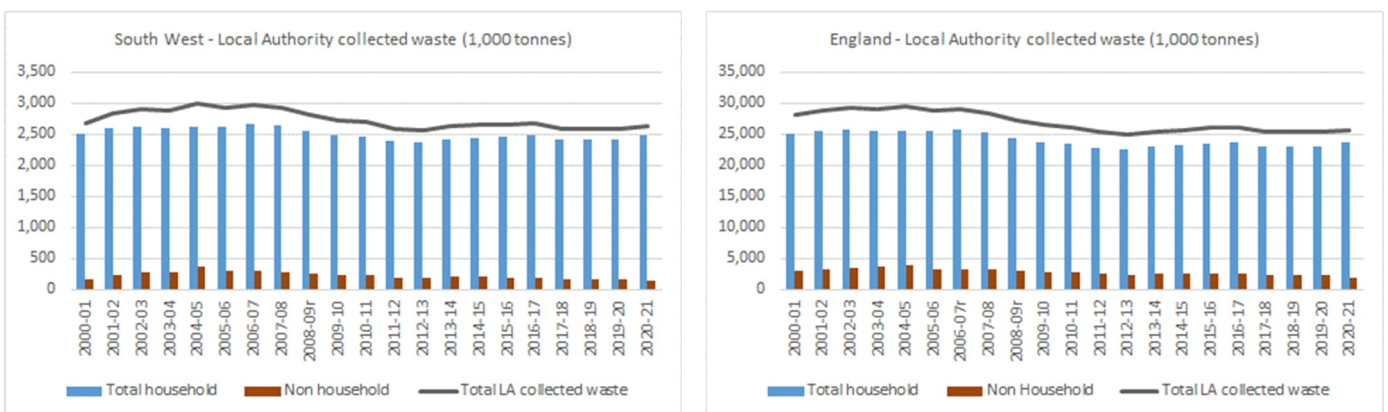


Sources: Wessex Water (2020) Annual Review Summary 2020. Available online: <https://www.wessexwater.co.uk/corporate/sustainability/sustainability-at-wessex-water/indicators> (Accessed 12/01/22)

Material Use and Waste Generation

- 3.8.17 There is an ongoing need for society to reduce the amount of waste it generates by using materials more efficiently and improving the management of waste that is produced. In line with the widely adopted 'waste hierarchy', best practice for waste management is to reduce, re-use, recycle and recover, and only then should disposal (or storage) in landfill be considered.
- 3.8.18 Following a steady historical increase, the total amount of local authority waste generated in the South West of England peaked at just under 3 million tonnes in 2004-05 before falling until 2012-13 and then levelling off at about 2.5 million tonnes. A similar trend was observed in England (Figure 3.25). For the South West and England total waste collected increased slightly in 2020-21 compared to previous years. The local authority household waste recycling rate in the South West has continued to increase from 15% in 2000-01 to 49% in 2020-21, compared to a rise from 11% to 42% in England¹³².

Figure 3.25 Total local authority waste generated in England and the South West Region

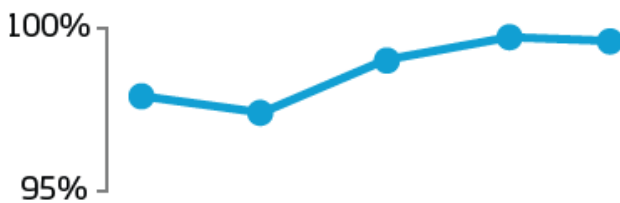


Source: Defra. ENV18 - Local authority collected waste: annual results tables. Available online: <https://www.gov.uk/government/statistical-data-sets/env18-local-authority-collected-waste-annual-results-tables> (Accessed 12/01/22)

¹³² Defra. ENV18 - Local authority collected waste: annual results tables. Available online: <https://www.gov.uk/government/statistical-data-sets/env18-local-authority-collected-waste-annual-results-tables> (Accessed 12/01/22)

3.8.19 Operationally, Wessex Water produces waste mainly in the form of sludge through the treatment of water for water supply (water treatment works sludge) and the treatment of wastewater (sewage sludge, or 'biosolids'). Whilst Wessex Water already recycle 100% of sludge to farmland, their business operations also generate other forms of waste including soil and stone from construction projects and grit and screenings from sewage treatment. Wessex Water set a target of sending no waste to landfill by 2020 and through integrated efforts are consistently diverting more than 97% of non-sludge waste from landfill since 2015-16, achieving 99.7% diversion in 2019-20¹³³ and 99.54% in 2020-21 (Figure 3.26)¹³⁴.

Figure 3.26 Non-sludge waste diverted from landfill by Wessex Water (2015-16 to 2019-20)



Sources: Sources: Wessex Water (2020) Annual Review Summary 2020. Available online: <https://www.wessexwater.co.uk/corporate/sustainability/sustainability-at-wessex-water/indicators> (Accessed 12/01/22)

Likely Evolution of the Baseline without the WRMP24

3.8.20 Overall water demand in the Wessex Water region has been falling since the mid-1990s despite population growth owing to the reduction in leakage, reduced commercial demands and the increasingly efficient use of water by customers largely driven by metering. Given the rurality of Wessex Water’s supply area in which 69% of households are now metered, the predominance of established agricultural businesses and (low water using) service industries, it is unlikely there will be any sudden and/or unexpected changes in demand in the near term.

3.8.21 Supply surpluses were identified in WRMP14 and WRMP19 and no supply-side measures were therefore identified in these plans, although measures to reduce water usage were included. However, for WRMP24, Wessex Water is forecasting a deficit. This moves from a surplus of 7MI/d in 2022/23 to 32 MI/d by 2049/50 and an estimated 93 MI/d by 2079/80. The forecast deficit is a result of several drivers, including climate change, a move to 1 in 500 drought resilience, and environmental destination work (which leads to a ~60-80MI/d reduction in abstraction licences to protect, in particular, chalk streams).

¹³³ Wessex Water (2020) Annual Review Summary 2020. Available online: <https://www.wessexwater.co.uk/corporate/sustainability/sustainability-at-wessex-water/indicators> (Accessed 12/01/22)

¹³⁴ Wessex Water (2021) Annual Review Summary 2021. Available online: <https://www.wessexwater.co.uk/corporate/strategy-and-reports/performance/annual-results-2021> (Accessed 11/01/22)

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- 3.8.22 Wessex Water want to accelerate their work with customers on water efficiency and metering to reverse the recent rising trend in average use per person per day. Wessex Water aim to further reduce leakage by 15% between 2020 and 2025¹³⁵.
- 3.8.23 The South West region's energy consumption has declined from the 2005 levels, a trend which is also similar for England. This trend is expected to continue due to energy efficiency improvements (although an increase in economic activity and fluctuations in oil and gas prices may affect this). There is also expected to be an increase in energy use from renewables and in this context, the UK aims to fully decarbonise the UK's power system by 2035. In this wider context Wessex Water plan to increase its renewable energy generation and reduce its energy use achieving net zero operations by 2030.
- 3.8.24 The South West region's total amount of local authority waste generation has decreased from the peak in 2004-05 and has levelled off since 2012-13 (although 2019-20 saw a small increase on previous years) whilst the household recycling rate has been steadily increasing. A similar trend was observed in England. Taking into consideration the Waste Strategy for England, diminishing landfill capacity and a fast-growing waste recycling and recovery industry, the proportion of waste sent to recovery rather than landfill is set to continue to increase in the future.

Key Issues Relevant to the WRMP24

- 3.8.25 The key environmental, social and economic issues relevant to the WRMP24 arising from the baseline assessment of material assets and resource use are:
- The need to minimise the demand for water resources through water efficiency measures (including metering) and the reduction of leakage in the region.
 - The need to reduce energy consumption.
 - The need to ensure the sustainable and efficient use of resources such as construction materials.
 - The need to minimise waste arisings, promote reuse, recovery and recycling and minimise the impact of waste on the environment and communities.

3.9 Cultural Heritage

Baseline Characteristics

- 3.9.1 Heritage assets range from sites and buildings of local historic value to those of the highest significance, such as World Heritage Sites.
- 3.9.2 World Heritage Sites are regarded as being universally important and 'belonging to all the peoples of the world, irrespective of the territory on which they are located'. They are listed by United Nations Educational, Scientific and Cultural Organization (UNESCO). There are three World Heritage Sites in the Wessex Water area (see Figure 3.27).

¹³⁵ Wessex Water (2021) Annual Review Summary 2021. Available online: <https://www.wessexwater.co.uk/corporate/strategy-and-reports/performance/annual-results-2021> (Accessed 11/01/22)

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- 3.9.3 Scheduling is the selection of nationally important archaeological sites. Scheduled sites form a carefully chosen sample of archaeological sites, which are closely managed. The Ancient Monuments and Archaeological Areas Act 1979 provides for the scheduling of ancient monuments. There are 2,275 scheduled monuments in the Wessex Water area (see Figure 3.27).
- 3.9.4 Historic parks and gardens are a fragile and finite resource; they can easily be damaged beyond repair or lost forever. Whether in town or country, such places are an important, distinctive, and much cherished part of our inheritance and we have a duty to care for them. In order to identify those sites which are of particular historic significance, Historic England is enabled by government to compile the 'Register of Parks and Gardens of Special Historic Interest in England'. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the landscapes' special character.¹³⁶ The Wessex Water area has 108 historic parks and gardens (see Figure 3.27).
- 3.9.5 Historic England's Register of Historic Battlefields identifies 46 important English battlefields. Its purpose is to offer them protection through the planning system, and to promote a better understanding of their significance and public enjoyment.¹³⁷ The Wessex Water area includes 4 Historic Battlefields (see Figure 3.27).
- 3.9.6 The Protection of Wrecks Act 1973 allows the Secretary of State to designate a restricted area around a wreck to prevent uncontrolled interference. These protected areas are likely to contain the remains of a vessel, or its contents, which are of historical, artistic or archaeological importance.¹³⁸ There are 6 protected wrecks in proximity to the Wessex Water area (See Figure 3.27).

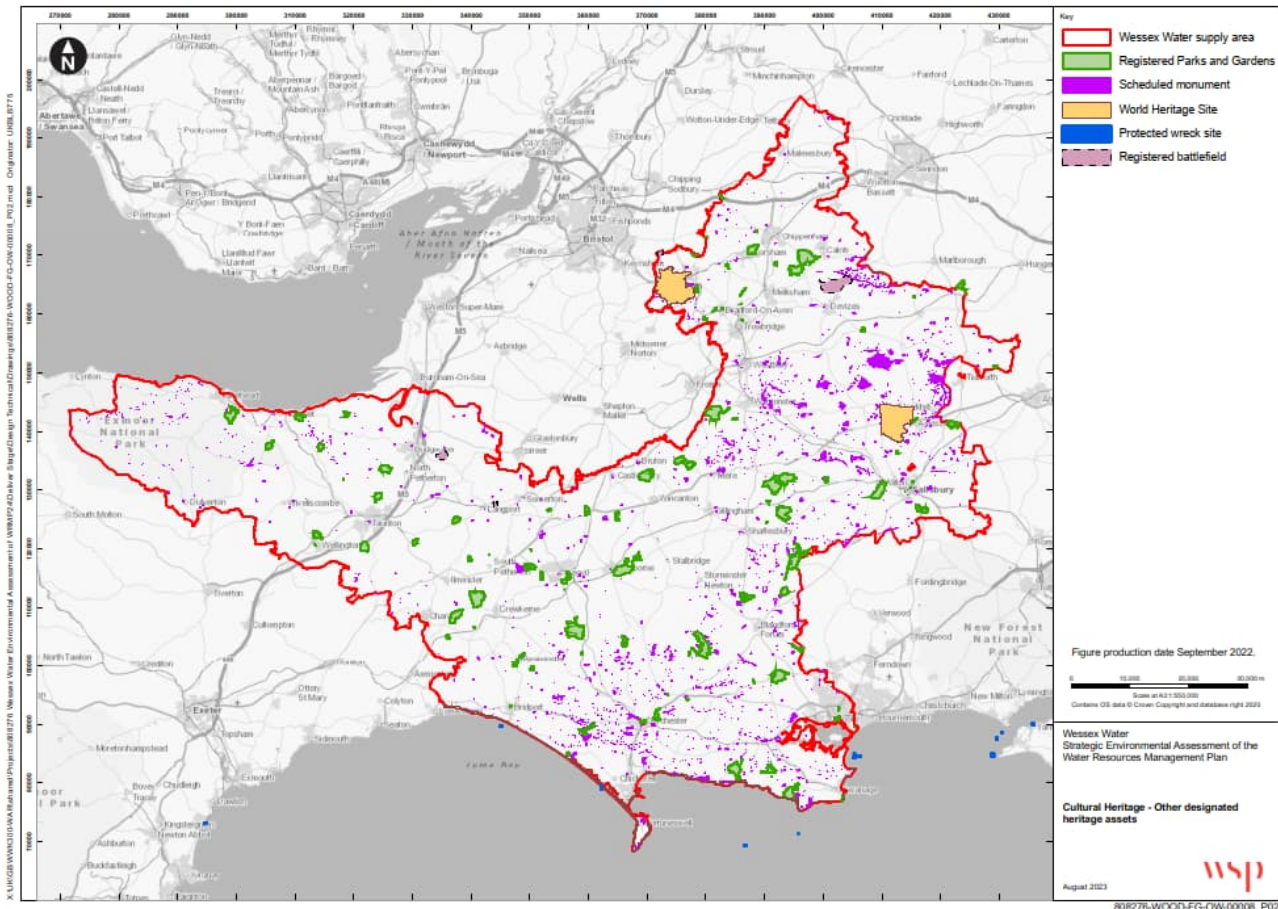
¹³⁶ Historic England (2022). Available on line: <https://historicengland.org.uk/listing/what-is-designation/registered-parks-and-gardens/> (accessed 13/01/22)

¹³⁷ Historic England (2022). Available on line: <https://historicengland.org.uk/listing/what-is-designation/registered-battlefields/> (accessed 13/01/22)

¹³⁸ Historic England (2022). Available on line at: <https://historicengland.org.uk/listing/what-is-designation/protected-wreck-sites/> (accessed 13/01/22)

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Figure 3.27 Heritage designations



3.9.7 The Planning (Listed Buildings and Conservation Areas) Act 1990¹³⁹ outlines the level of protection received by listed buildings and buildings within Conservation Areas (in England and Wales). Listing marks and celebrates a building's special architectural and historic interest, and also brings it under the consideration of the planning system, so that it can be protected for future generations:¹⁴⁰

- Grade I buildings are of exceptional interest, only 2.5% of listed buildings are Grade I.
- Grade II* buildings are particularly important buildings of more than special interest; 5.8% of listed buildings are Grade II*.
- Grade II buildings are of special interest; 91.7% of all listed buildings are in this class and it is the most likely grade of listing for a home owner.

3.9.8 The Wessex Water area has around 795 Grade I listed buildings, 1,770 Grade II* listed buildings and 27,405 Grade II listed buildings¹⁴¹ (see Figure 3.28).

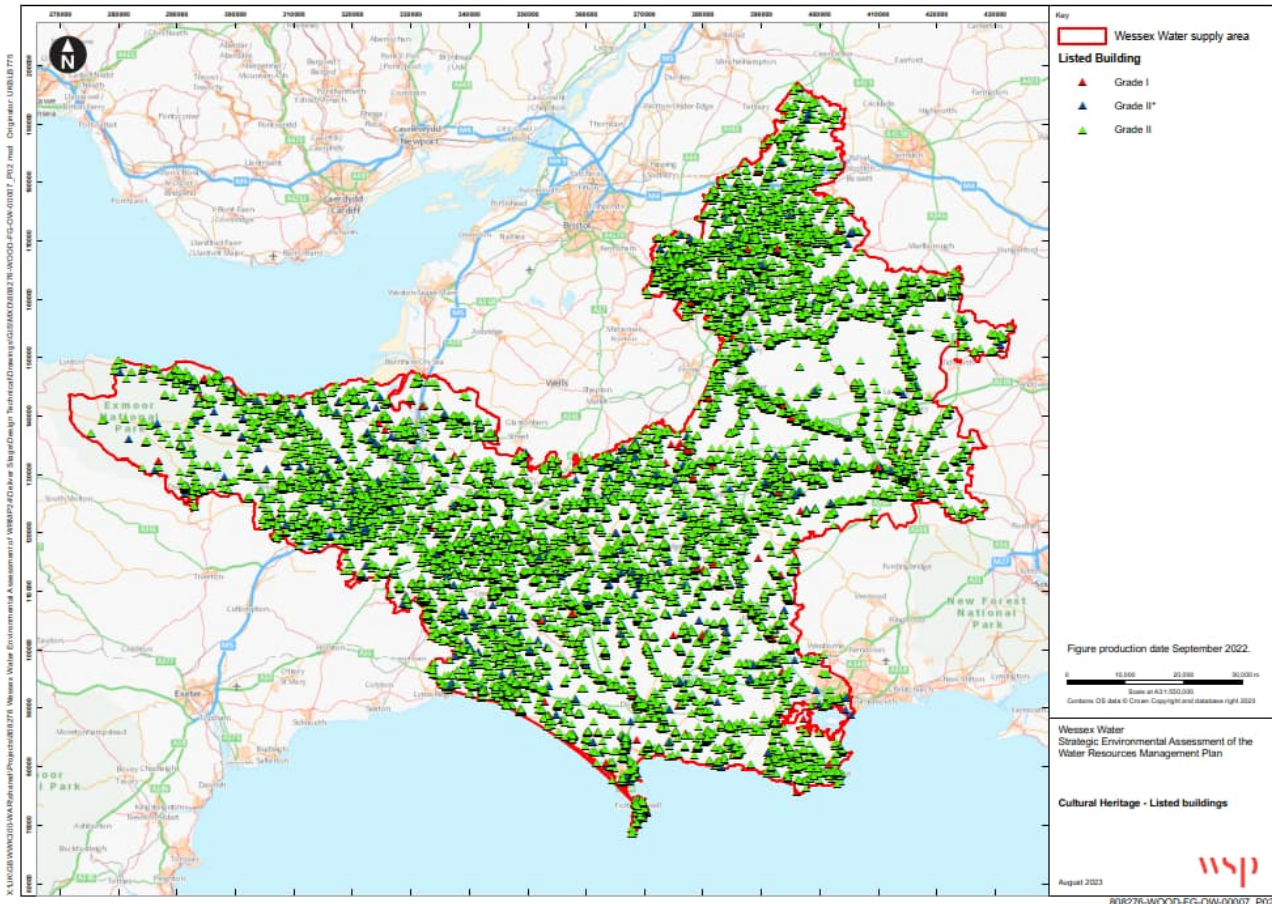
¹³⁹ HM Government (1990). Available on line: <http://www.legislation.gov.uk/ukpga/1990/9/contents> (accessed 13/01/22)

¹⁴⁰ Historic England (2021). Available on line: <https://historicengland.org.uk/listing/what-is-designation/listed-buildings/> (Accessed 12/01/22)

¹⁴¹ National Heritage List for England (2021). Available on line: <https://historicengland.org.uk/listing/the-list/> (accessed 13/01/22)

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Figure 3.28 Listed Buildings



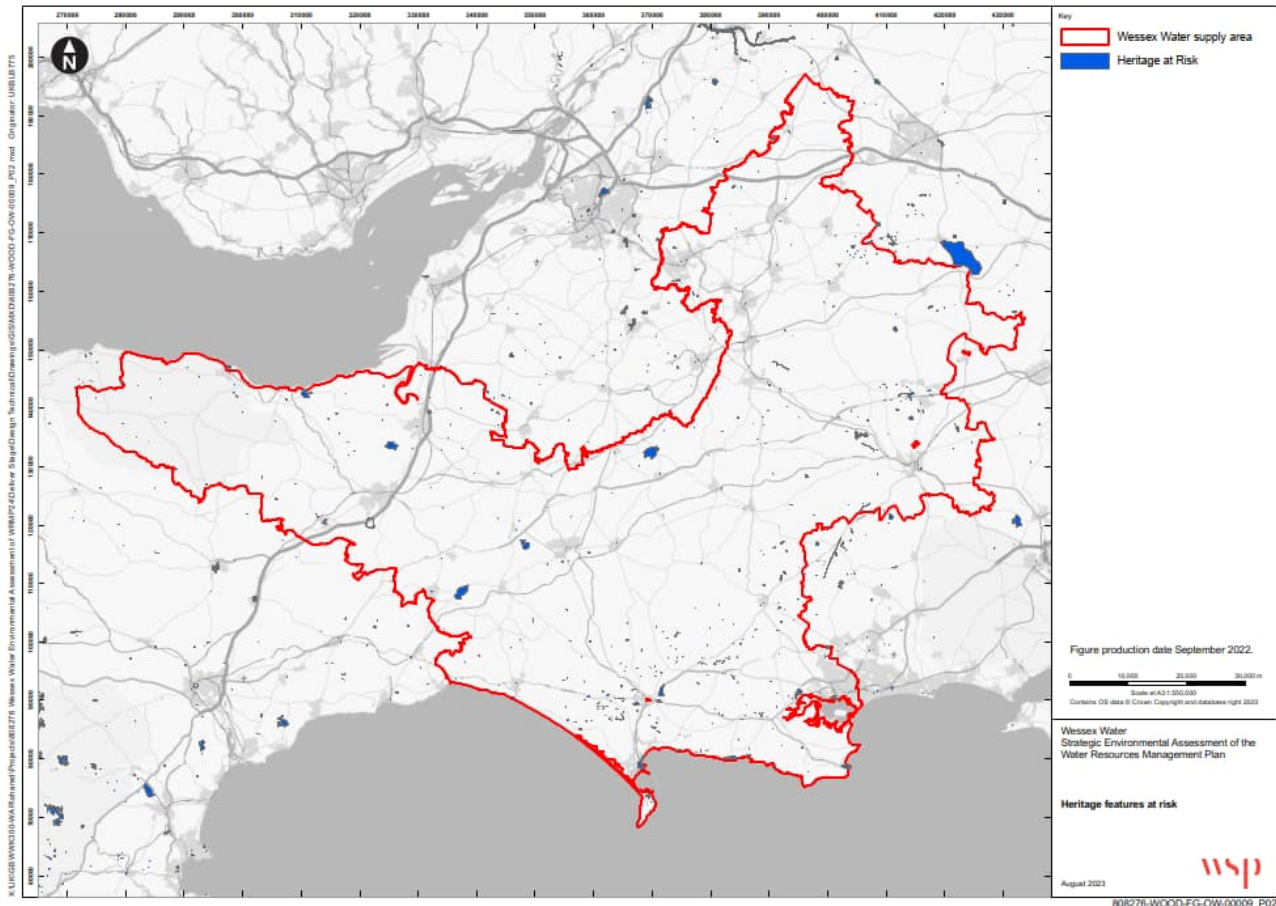
3.9.9 Historic England maintains a Heritage at Risk Register which considers:

- Building or structure (grade I and II* listed buildings nationally, grade II listed buildings in London, and structural scheduled monuments);
- Place of worship (grade I, II* and II listed buildings);
- Scheduled monuments - earthworks and buried archaeology);
- Registered parks and gardens;
- Registered battlefields;
- Protected wreck sites;
- Conservation areas.

3.9.10 There are 461 heritage features at risk within the Wessex Water area (see Figure 3.29).

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Figure 3.29 Heritage features at risk



- 3.9.11 There may be many buildings and sites in a local planning authority's area that make a positive contribution to its local character and sense of place because of their heritage value. Although such heritage assets may not be nationally designated or even located within the boundaries of a conservation area, they may be offered some level of protection by the local planning authority identifying them on a formally adopted list of local heritage assets.¹⁴²
- 3.9.12 There are over 85 Historic Environment Records (HERs) in England which are maintained and managed by local authorities as the essential core of historic environment services. These are mainly county council or unitary authority based, but may also be held by joint services (i.e. more than one authority working together), district councils, and national park authorities. Similar records are maintained by major landowners, such as, the National Trust. In addition to all known non-designated archaeological sites, HER records may cover:¹⁴³
- Non-designated buildings and standing structures of historic interest, and where a Local List is held, those identified as locally significant;

¹⁴² Historic England (2021). Available on line at: <https://historicengland.org.uk/advice/hpg/has/locallylistedhas/> (accessed 13/01/22)

¹⁴³ Historic England (2021). Available on line at: <https://historicengland.org.uk/advice/technical-advice/information-management/hers/> (accessed 13/01/22)

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- Designated Heritage Assets (e.g. listed buildings, scheduled monuments, protected wrecks, registered parks and gardens and registered battlefields);
- Conservation areas;
- Sites with known palaeo-environmental interest;
- Historic landscape character studies including urban surveys;
- Regional and local thematic studies of archaeological sites or historic buildings;
- Finds recorded under the Portable Antiquities Scheme.

Likely Evolution of the Baseline without the WRMP24

3.9.13 The likely evolution of the baseline without the WRMP24 is likely to include the following:

- Cultural heritage assets are vulnerable to disturbance from development, land management and the effects of climate change. These effects are likely to continue.
- Managing water resources can impact on, or enhance, cultural heritage features. The protection, preservation and settings of cultural heritage assets need to be considered when locating any new development including water resources management infrastructure. The HER will continue to provide an important resource where available.
- Wessex Waters duties under the Water Industry Act 1991 which include a duty to conserve and enhance archaeology would remain in place.

Key Issues Relevant to the WRMP24

3.9.14 The key environmental, social and economic issues relevant to the WRMP24 arising from the baseline assessment for cultural heritage are:

- The need to conserve and enhance the historic significance of buildings, monuments, features, sites, places, areas of archaeological and cultural heritage interest, particularly those which are sensitive to the water environment.
- The need to conserve and enhance World Heritage Sites within the Wessex Water area.
- The need to avoid damage to important wetland areas with potential for paleoenvironmental deposits, for example within the Avon Valley National Character Areas.

3.10 Landscape

Baseline Characteristics

3.10.1 Landscape is defined by The European Landscape Convention¹⁴⁴ as *“an area, as perceived by people, whose character is the result of the action and interaction of natural and/or*

¹⁴⁴ Council of Europe (2000) *European Landscape Convention*. Available online:

<https://rm.coe.int/CoERMPublicCommonSearchServices/DisplayDCTMContent?documentId=09000016802f80c6> (accessed 13/01/22)

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human factors". This definition is stated as covering natural, rural, urban and peri-urban (i.e. the urban-rural fringe) and includes land, inland water and marine areas. There is currently no legal definition for seascape although the UK Marine Policy Statement (MPS) (2011)¹⁴⁵ sets out that seascape should be taken as meaning landscapes with views of the coast or seas, and coasts and the adjacent marine environment with cultural, historical and archaeological links with each other.

- 3.10.2 National Parks are areas of relatively undeveloped and scenic landscape. Designation as a National Park may include substantial settlements and human land uses which are often integral parts of the landscape. Land within a National Park remains largely in private ownership. Each National Park is operated by its own National Park authority, with two statutory purposes:
- to conserve and enhance the natural beauty, wildlife and cultural heritage of the area; and
 - to promote opportunities for the understanding and enjoyment of the Parks.
- 3.10.3 The following National Parks are present in the Wessex Water area (Figure 3.31):
- Exmoor National Park; and
 - New Forest National Park (a small portion of the northern area of the Park is within the Wessex Water area).
- 3.10.4 Areas of Outstanding Natural Beauty (AONBs) are areas of high scenic quality that have statutory protection in order to conserve and enhance the natural beauty of their landscapes. The following AONBs are present in the Wessex Water area (Figure 3.31).
- Dorset;
 - Quantock Hills;
 - Blackdown Hills;
 - North Wessex Downs; and
 - Cranbourne Chase & West Wiltshire Downs.
- 3.10.5 Natural England has identified areas with similar landscape character as National Character Areas (NCAs). These integrate a wide range of environmental information to create a 'profile' for each of England's 159 major landscape areas, exploring the characteristic landscape, wildlife, cultural and geological features to be found, and providing information on how the landscape is changing, how it supports economic activity, and what are the local environmental opportunities for the future. Relevant NCAs also include an areas relationship to seascape. The Wessex Water area includes 24 NCAs (Figure 3.30). Natural England prepared profiles for each of these areas in 2014 which include a

¹⁴⁵ Defra (2011) *UK Marine Policy statement*. Available online:

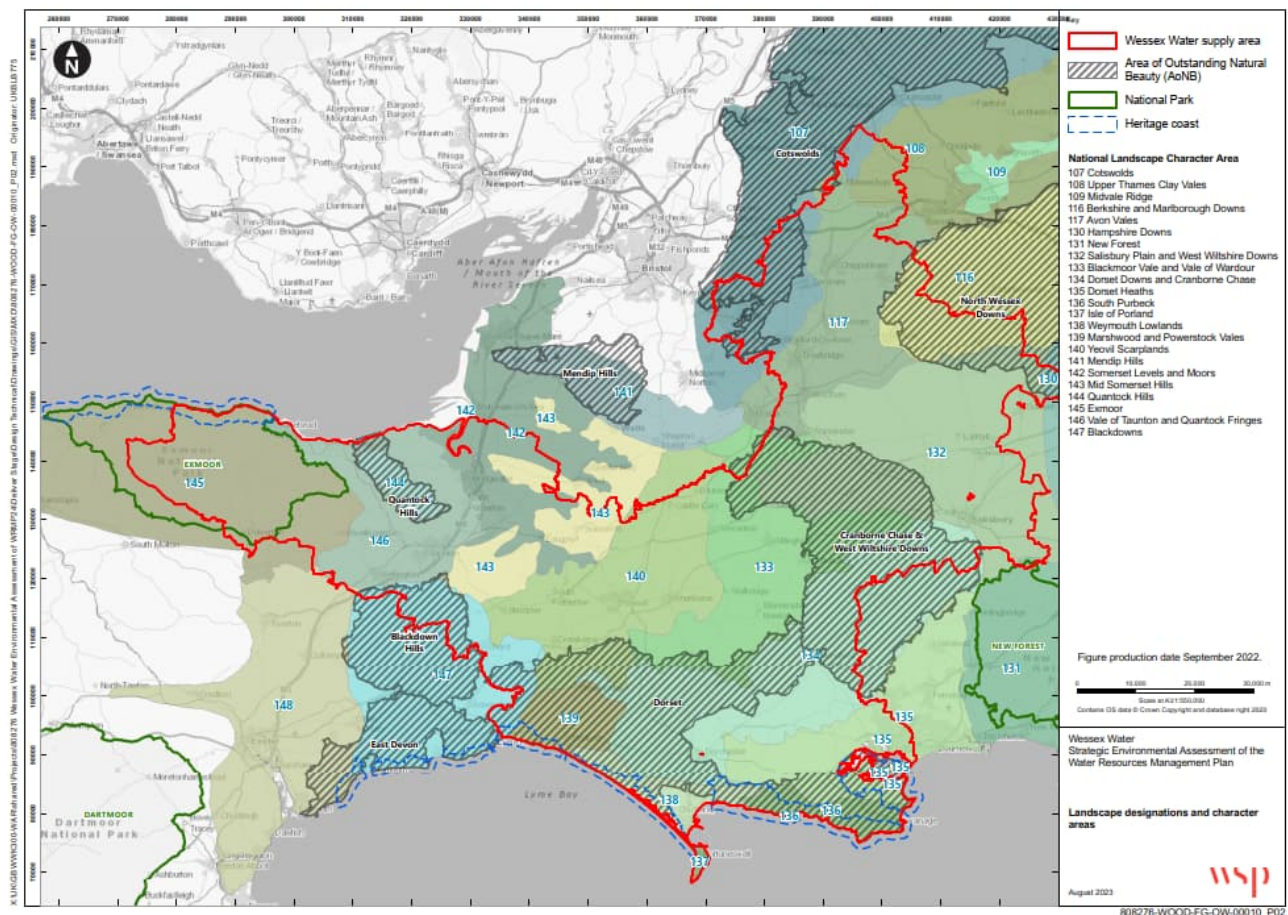
<https://www.gov.uk/government/publications/uk-marine-policy-statement> (accessed 12/01/22)

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description of the area, the influences on landscape and recommendations for future management.¹⁴⁶

- 3.10.6 Heritage Coasts are areas defined for the beauty and undeveloped nature of the coastline and are relevant to the consideration of landscape and seascape although they are not statutorily designated. They are managed to conserve their natural beauty and, where appropriate, to improve accessibility for visitors. The Wessex Water area includes four areas of Heritage Coast (see Figure 3.30).

Figure 3.30 Landscape designations and character areas



Likely Evolution of the Baseline without the WRMP24

- 3.10.7 There are likely to be a range of changes to the existing baseline situation:
- Key factors determining landscape change are, in particular, the planned expansion of settlements associated with the provision of housing, commercial and industrial development, road improvements, renewable energy developments and recreational related developments.

¹⁴⁶ Natural England (2014) National Character Area Profiles. Available online: <https://www.gov.uk/government/publications/national-character-area-profiles-data-for-local-decision-making/national-character-area-profiles#ncas-in-south-west-england> (accessed 12/01/22)

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- It is likely that National Parks and AONBs will continue to be given the degree of protection that they are currently afforded in the National Planning Policy Framework. Heritage Coasts will remain an important policy approach for protecting the beauty and undeveloped nature of the coastline.
- Changes in weather patterns and soil conditions will alter the vegetation that is an important landscape feature whilst flooding and coastal erosion may affect landscape and seascape character. Responses to climate change such as the introduction of new crops and land uses may also have an impact on the visual appearance of the landscape whilst new flood defences could affect seascape. NCAs are likely to remain important as the basis for protecting, enhancing and managing landscape.
- Wessex Water’s duties under the Water Industry Act 1991 to conserve and enhance wildlife, geology and archaeology and maintain public access to places of natural beauty would remain in place.

Key Issues Relevant to the WRMP24

3.10.8 The key sustainability issues relevant to the WRMP24 arising from the analysis of the landscape and seascape baseline are:

- The need to conserve and enhance landscape and seascape character, taking into account the effects of climate change and recommendations for managing change in the profile of relevant NCAs.
- The need to ensure the special qualities of designated landscapes including Exmoor National Park and AONBs in the Wessex Water area are protected.
- The need to minimise any adverse impacts upon landscape and seascape that may result from measures in the WRMP24.

3.11 Summary of the Key Issues Relevant to the WRMP24

3.11.1 From the analysis of the baseline presented in the preceding sections, a number of key sustainability issues have been identified as being relevant to the WRMP24. These issues are summarised in Table 3.16.

Table 3.16 Key Issues Relevant to the WRMP24

Topic Area	Key Environmental, Social and Economic Issues Relevant to the WRMP24
Biodiversity	<ul style="list-style-type: none"> • The need to protect and enhance sites designated for nature conservation. • The need to continue to increase and improve the condition of priority habitats and habitats of priority species and restore populations of these species and other specially protected species. • The need to avoid activities likely to cause irreversible damage to natural heritage. • The need to take opportunities to improve connectivity between fragmented habitats to create functioning habitat corridors. • The need to control the spread of Invasive Non-Native Species (INNS). • The need to recognise the importance of allowing wildlife and sensitive habitats to adapt to climate change.

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Topic Area	Key Environmental, Social and Economic Issues Relevant to the WRMP24
Geology Land use and Soils	<ul style="list-style-type: none"> • The need to influence how land is managed, promoting sustainable patterns of land use including the use of previously developed land. • The need to protect and avoid damage to geodiversity and conserve and enhance sites designated for geological interest. • The need to manage impacts on soil resources, including control of pollution and remediation of contaminated land, and minimise the loss of the best and most versatile agricultural land.
Water	<ul style="list-style-type: none"> • The need to maintain and further improve the quality of the rivers, estuarine and coastal waters taking into account WFD objectives. • The need to maintain the quantity and quality of groundwater resources taking into account WFD objectives. • The need to ensure sustainable and appropriate abstraction levels and water flow/levels in waters across the full range of regimes from low to high conditions and meet society's needs for a resilient water supply. • The need to maintain and enhance the resilience of the water environment to the effects of climate change. • The need to reduce and manage flood risk.
Air Quality	<ul style="list-style-type: none"> • The need to minimise emissions of pollutant gases and particulates to comply with air quality standards. • The need to enhance air quality.
Climate Change	<ul style="list-style-type: none"> • The need to reduce greenhouse gas emissions arising from implementation of the WRMP24. • The need to take into account, and where possible adapt to, the current and anticipated future effects and risks of climate change • The need to increase environmental resilience to the effects of climate change.
Human Environment	<ul style="list-style-type: none"> • The need to ensure that water supplies remain affordable, in particular for deprived or vulnerable communities. • The need to ensure that the WRMP24 does not have an adverse economic impact and benefits are maximised. • The need to ensure continuing safe, reliable and resilient provision of water and sewerage services to maintain health and wellbeing of the population. • The need to ensure water quantity and quality is maintained for other users including tourists, recreational users and other users such as farmers. • The need to accommodate an increase in population, households, dwellings and development associated with other uses that might impact on demand for water whilst ensuring the continued provision of essential services including water supply. • The need to ensure a balance between different aspects of the built and natural environment that will help to provide opportunities for local residents and tourists for access to green infrastructure and the natural and historic environment, as well as protecting and enhancing recreational resources. • The need to ensure that sites of nature conservation importance, heritage assets, water resources, important landscapes and public rights of way contribute to recreation and tourism opportunities and subsequently health and wellbeing and the economy.
Material Assets and Resource Use	<ul style="list-style-type: none"> • The need to minimise the demand for water resources through water efficiency measures (including metering) and the reduction of leakage in the region. • The need to reduce energy consumption. • The need to ensure the sustainable and efficient use of resources such as construction materials. • The need to minimise waste arisings, promote reuse, recovery and recycling and minimise the impact of waste on the environment and communities.

Topic Area	Key Environmental, Social and Economic Issues Relevant to the WRMP24
Cultural Heritage	<ul style="list-style-type: none"> • The need to conserve and enhance the historic significance of buildings, monuments, features, sites, places, areas of archaeological and cultural heritage interest, particularly those which are sensitive to the water environment. • The need to conserve and enhance World Heritage Sites within the Wessex Water area. • The need to avoid damage to important wetland areas with potential for paleoenvironmental deposits, for example within the Avon Valley National Character Areas.
Landscape	<ul style="list-style-type: none"> • The need to conserve and enhance landscape and seascape character, taking into account the effects of climate change and recommendations for managing change in the profile of relevant NCAs. • The need to ensure the special qualities of designated landscapes including Exmoor National Park and AONBs in the Wessex Water area are protected. • The need to minimise any adverse impacts upon landscape and seascape that may result from measures in the WRMP24.

3.12 Limitations of the Data and Assumptions Made

3.12.1 The information used has been sourced, so far as is possible, from the most recent datasets available utilising a wide range of authoritative and official sources. It is important to acknowledge that there are variable time lags between raw data collection and its publication. Consequently, at the time of this Environmental Report’s publication, the baseline or predicted future trends may have varied from those described above.

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4. Approach to the Assessment

4.1.1 This section describes the approach to the assessment of Wessex Water's Revised Draft WRMP24. It draws on the information contained in Sections 2 and 3, to define the scope of the assessment (in terms of the environmental and socio-economic issues to be considered) and sets out the SEA objectives and guide questions that comprise the assessment framework. The section then outlines how this assessment framework has been used to assess the options contained in the Revised Draft WRMP24.

4.2 The Scope of the Assessment

Topics

- 4.2.1 The aim of SEA is to identify, describe and evaluate the likely significant effects of implementing the Revised Draft WRMP24 on the environment. Schedule 2 of the SEA Regulations require that the assessment includes information on the "*likely significant effects on the environment, including on issues such as: biodiversity; population; human health; fauna; flora; soil; water; air; climatic factors; material assets; cultural heritage, including architectural and archaeological heritage; landscape; and the inter-relationship between the issues referred to*".
- 4.2.2 The key policy objectives identified from the review of other plans and programmes relevant to the assessment of the Revised Draft WRMP24 (Section 2) and the economic, social and environmental issues arising from the analysis of the baseline (Section 3), together with the characteristics of the water resource management options, have been used to define the scope of the assessment in terms of the topics set out in Schedule 2 of the SEA Regulations.
- 4.2.3 In this instance, all SEA topics identified by Schedule 2 of the SEA Regulations have been scoped in for assessment to provide a comprehensive basis to identify, describe and evaluate the likely significant effects arising from the construction and operation of the water resource management options.

Geographic Scope

- 4.2.4 The geographic extent of the SEA will reflect the operational area covered by Wessex Water's Revised Draft WRMP24.
- 4.2.5 Designated sites and features within 10km of each option have been identified and mapped using GIS tools with relative proximity used to inform an assessment of effect (taking into account the nature, extent and duration of proposals). In considering the adverse effects on European sites, a study area extending at least 10km outside the boundary of the Revised Draft WRMP24 has been taken into account. The SEA also draws on the findings of the HRA, which has identified all European sites within 20km of any physical infrastructure associated with an option, with sites beyond this considered where

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reasonable impact pathways are present based on the scheme description. The approach is consistent with that proposed in the revised UKWIR guidance¹⁴⁷.

4.2.6 Where water resource options include transfers and potential water trading options between companies, where appropriate further consideration will be given to the effects outside the operational area of the Revised Draft WRMP24. This also extends to the assessment of cumulative effects, where consideration of plans or programmes that cover areas that either overlap or are adjacent to the Revised Draft WRMP24 being assessed are also taken into account.

Timescales

4.2.7 When considering the timing of potential effects of the Revised Draft WRMP24, the assessment has classified effects as ‘short,’ ‘medium’ or ‘long-term.’ This reflects an intention to capture the differences that could arise at different timescales, consistent with the requirements of Schedule 1 (2)(a) of the SEA Regulations where the assessment of the effects should have regard to “the probability, duration, frequency and reversibility of the effects”.

4.2.8 Table 4.1 below summarises the timescales applied in the SEA informed by the 5-year cycle of review of the plan. For the purposes of this assessment, short-term will be considered as up to 1 year, medium-term (from 1 year to 5 years (to the end of the plan review cycle)) and long-term will for the period beyond 5 years (beyond the plan review cycle).

Table 4.1 Duration of Short, Medium and Long Term

Estimated Length (years)	Duration
0-1 years	Short
>1-5 years	Medium
Over 5 years	Long

4.3 Assessment Framework

4.3.1 Establishing appropriate SEA objectives and guide questions is central to assessing the effects of the Revised Draft WRMP24 on the environment. Each of the feasible water resource management options and preferred options will be assessed against the SEA objectives to determine the scale and significance of the effect. Guide questions focus the assessment on specific aspects of the objective that reflect issues identified from the review of baseline and contextual information relating to Wessex Water’s WRMP24 area.

¹⁴⁷ UKWIR (2021) *Environmental Assessment Guidance for Water Resources Management Plans and Drought Plans*. Report Ref. No. 21/WR/02/15]

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- 4.3.2 The SEA objectives and guide questions used in the assessment of the Revised Draft WRMP24 reflect the topics contained in Schedule 2 (6) of the SEA regulations and have been informed by:
- the previous SEA assessment frameworks used to complete the SEA of Wessex Water’s draft Drought Plan;
 - the review of relevant plans and programmes and the associated key policy objectives and messages (Section 2 and Appendices B);
 - the baseline information and key issues contained in Section 3; and
 - relevant information in guidance e.g. the suggested core set of objectives in the All Company Working Group (ACWG) 2020 report ‘Strategic Environmental Assessment: Core Objective Identification’.
- 4.3.3 The assessment framework is presented in Table 4.2. It contains 13 assessment objectives. A draft version was included in the Scoping Report, and has been revised following scoping consultation responses. The revised framework has been used to complete the assessment of the Revised Draft WRMP24.

Table 4.2 Assessment Framework

Topic	Objective	Guide Questions
Biodiversity, Flora and Fauna	1. To protect, restore and enhance biodiversity, including designated sites of nature conservation interest, protected habitats and species, enhance ecosystem services and resilience and deliver a net biodiversity gain.	<ul style="list-style-type: none"> • Will it protect, restore and where possible, enhance the most important sites for nature conservation (e.g. internationally or nationally designated conservation sites such as SACs, SPAs, Ramsar, SSSIs and NNRS)? • Will it protect, restore and where possible enhance non-designated sites and local biodiversity? • Will it lead to a change in the ecological quality of habitats due to changes in water quality and/or quantity? • Will it alter geomorphological forms and processes affecting physical habitat for aquatic ecosystems? • Will it maintain and enhance the green infrastructure network and the biodiversity it supports? • Will it protect, restore or enhance natural capital and ecosystem services? • Will it provide opportunities to deliver biodiversity net gain (e.g. new habitat creation, restoration or connectivity)? • Will it limit, reduce or eliminate the risk of spread of Invasive Non-Native Species (INNS)? • Will it provide opportunities for climate adaptation and protect the climate resilience of vulnerable and priority sites? • Will the activity result in any permanent losses to natural capital or irreplaceable habitats (e.g. Ancient Woodland)?
Soils, Land Use and Geology	2. To protect and enhance soil quantity, quality and functionality and geodiversity and contribute to the sustainable use of land.	<ul style="list-style-type: none"> • Will it minimise the loss of best and most versatile agricultural land? • Will the option affect soil contamination or involve remediation? • Will it avoid damage to, and protect and enhance (where possible) protected sites designated for their geological interest (e.g. GCR sites, SSSI and RIGS) and features of wider geodiversity interest?

Topic	Objective	Guide Questions
		<ul style="list-style-type: none"> Will it ensure efficient use of land (e.g. make use of previously developed land)? Will it require below ground works leading to land sterilisation? Will it contribute towards a catchment-wide approach to land management? Will it avoid adverse effects on other land uses (such as forestry)?
Water	3. To maintain, protect and enhance surface and ground water resource levels, flows and quality	<p><u>Quantity</u></p> <ul style="list-style-type: none"> Will it be consistent with the Catchment Abstraction Management Strategies (CAMS) water availability assessment? Will it result in unsustainable changes to flow regimes, channel morphologies, wetted width or river levels? Will it result in unsustainable changes to groundwater levels? Will it support the achievement of relevant environmental objectives set out in the SW River Basin Management Plan? <p><u>Quality</u></p> <ul style="list-style-type: none"> Will it protect and improve surface, groundwater, estuarine and coastal water quality? Will it be Water Framework Directive (WFD) compliant (e.g. prevent the deterioration of WFD waterbody status (or potential))? Will it support the achievement of WFD protected area objectives? Will it support the future achievement of good status for a water body? Will it support the achievement of relevant environmental objectives set out in the SW River Basin Management Plan? Will the option prevent nutrient loading in water bodies?
Water – Flood Risk	4. To reduce or manage flood risk.	<ul style="list-style-type: none"> Will the option be at risk of flooding now or in the future? Will it have the potential to cause or exacerbate flooding in the catchment area including the risks to people and property, now or in the future? Will it have the potential to help alleviate or mitigate flooding in the catchment area including to people and property now or in the future (e.g. will it increase catchment storage, or provide opportunities to improve flood risk management)? Will it promote the use of sustainable drainage systems?
Air	5. To minimise emissions of pollutant gases and particulates and enhance air quality.	<ul style="list-style-type: none"> Will it maintain or enhance ambient air quality, keeping pollution below Local Air Quality Management thresholds (e.g. in Air Quality Management Areas (AQMAs) or sensitive habitats)?
Climatic Factors	6. To reduce embodied and operational greenhouse gas emissions.	<ul style="list-style-type: none"> Will it have a low level of embodied carbon? Will it reduce or minimise greenhouse gas emissions? Will the option affect carbon sequestration?
	7. To adapt and improve resilience to the threats of climate change.	<ul style="list-style-type: none"> Will it improve resilience and/or adaptability to the likely effects of climate change, e.g., by increasing resilience of water supplies or catchments? Will it increase environmental resilience (including that of natural ecosystems) to the effects of climate change including to impacts on flood risk and water quality? Will coastal erosion have consequences on the operation of this option now or in the future, taking account of expected climate change sea level rise?

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Topic	Objective	Guide Questions
Population	8. To promote a sustainable economy and maintain and enhance the economic and social well-being of local communities.	<ul style="list-style-type: none"> • Will it ensure that sufficient water resources infrastructure is in place to support predicted population increases? • Will it ensure sufficient water resource infrastructure is in place to meet other user needs (e.g. agriculture, tourists, visitors)? • Will it ensure that an affordable supply of water is maintained, and vulnerable customers protected? • Will it contribute to sustaining and growing the local and regional economy? • Will it avoid disruption through effects on the transport network? • Will it avoid negative effects on built assets/ existing infrastructure including transport?
Human Health	9. To protect and enhance human health and well-being.	<ul style="list-style-type: none"> • Will it ensure the continuity of a safe and secure drinking water supply and quality? • Will it maintain surface water and bathing water quality within statutory standards? • Will it help to promote healthy communities and avoid risks to health and wellbeing (e.g. due to noise resulting from construction traffic or disruption to safe and reliable water/sewerage services)? • Will it protect and enhance public access to, and enjoyment of, green and blue infrastructure, open space/recreational facilities and the natural and historic environment, and in doing so help promote healthy lifestyles including mental well-being?
Material Assets - Water Resources	10. To promote and enhance the sustainable and efficient use of resilient water resources.	<ul style="list-style-type: none"> • Will it lead to reduced leakage from the supply network? • Will it improve efficiency in water consumption? • Will it ensure sustainable abstractions, taking account of water resource availability? • Will it increase the resilience of water resources, now and into the future? • Will it contribute towards improving the awareness of water sustainability?
Material Assets – Waste and Resource Use	11. To minimise waste, promote resource efficiency and move towards a circular economy.	<ul style="list-style-type: none"> • Will it make use of existing infrastructure? • Will it promote the re-use and recycling of waste materials and reduce the proportion of waste sent to landfill? • Will it help to encourage sustainable design or use of sustainable materials (e.g. supplied from local resources)?
Cultural Heritage	12. To conserve and enhance the historic environment including the significance of heritage assets and their settings and archaeologically important sites.	<ul style="list-style-type: none"> • Will it avoid damage to, conserve or enhance the historic environment, including heritage assets and their settings e.g. World Heritage Sites, scheduled monuments, historic buildings, conservation areas, features, places and spaces? • Will the hydrological setting of water-dependent assets be altered, such as important wetland areas with potential for paleo-environmental deposits? • Will it avoid damage to important wetland areas with potential for paleoenvironmental deposits? • Will it improve access, value, understanding or enjoyment of heritage assets and culturally/historically important assets in the region?
Landscape	13. To conserve, protect and enhance landscape, seascape and townscape character and visual amenity.	<ul style="list-style-type: none"> • Will it avoid adverse effects to, and enhance where possible, protected/designated landscapes and the settings of designated landscapes_(including woodlands) e.g. National Parks, AONBs?

Topic	Objective	Guide Questions
		<ul style="list-style-type: none"> • Will it help to protect and improve non-designated areas of natural beauty and distinctiveness (e.g., woodlands) and avoid the loss of landscape features and local distinctiveness? • Will it protect and enhance landscape character, townscape, seascape and green infrastructure? • Will it minimise adverse visual impacts?

4.4 Assessment Methodology

4.4.1 The effects of the Draft WRMP24 and the Revised Draft WRMP24 will be assessed in a staged process, complementary to the development of the plan, and reflecting the decision-making requirements, as follows:

- Feasible option assessment: a high-level assessment of all feasible options (including resource management and demand management options) against the 13 SEA assessment objectives detailed in Table 4.2 with findings available to inform the screening and refinement of options (for the WRMP24).
- Preferred option assessment: for those options selected, a further, more detailed assessment will be undertaken of the preferred plan against the 13 SEA assessment objectives detailed in Table 4.2, taking into account updated option information, potential mitigation and stakeholder views.
- Preferred programme assessment: the cumulative effects of the preferred programme of options will be completed, to ensure that the effects of the Revised Draft WRMP24 have been identified, described and evaluated.
- Alternative Plan assessments: an assessment of the cumulative effects of any reasonable alternative plans for consideration along with the preferred plan.

4.4.2 The approach to these stages of assessment is described in more detail below.

Feasible Options

4.4.3 Feasible options were developed as part of the staged process of developing the Draft WRMP24. As a result of the further work undertaken following consultation on the Draft WRMP24, additional feasible options were developed to inform the preparation of the Revised Draft WRMP24.

4.4.4 Both the construction and operational effects of all the feasible options (for the Draft and Revised Draft WRMP24) have been assessed against all of the SEA objectives that comprise the assessment framework. This approach ensures a comprehensive consideration of any likely effects. It also recognises that the environmental effects are likely to be different in their nature, scale and significance during construction as opposed to their operation. For those options that would not require construction works *per se* and may be ongoing in nature (for example, the installation of water efficient devices, audits and educational programmes), construction in the context of the SEA refers to any enabling/installation works or option implementation.

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4.4.5 The assessment of effects has included consideration of the following:

- the nature of the potential effect (what is expected to happen);
- the timing and duration of the potential effect (e.g., short, medium or long term);
- the geographic scale of the potential effect (e.g., local, regional, national);
- the location of the potential effect (e.g., whether it affects rural or urban communities, or those in particular parts of a water company area); and
- the potential effect on vulnerable communities or sensitive sites.

4.4.6 Where relevant, other information and assessments including the HRA and WFD Assessment have been referenced as appropriate, including any regulators and stakeholder feedback received.

4.4.7 A matrix similar to that shown in Table 4.3 has been used to capture the assessment of each revised feasible water resource management option in a consistent manner; a key to the meaning of the symbols is presented in Table 4.4.

Table 4.3 Example Feasible Options Assessment Matrix

Option Assessment Information														
Option ID	18.01													
Option Name	Samarzet Spine main upgrade													
Option Description	This option reinforces the Spine main to transfer more water from Kington St Mary Service Reservoir to Odecombe Service Reservoir (Yavil). This main is routed through the very edge of the Samarzet Levels and Moor SAC/SSSI. The main is currently comprised of 45km of 600-900mm pipeline laid in 1970-1990s, with two booster stations at Fivehead Pumping Station and Ball Hill Pumping Station. Pumping capacity of option include an increase in pumping at Fivehead Pumping Station from 30 Ml/d to 36 Ml/d - an increase of 6 Ml/d; and an increase in pumping at Ball Hill Pumping Station from 16 Ml/d to 22 Ml/d - an increase of 6 Ml/d. Additionally, reinforcement of a part of the Spine Main to achieve flow of 36 Ml/d is required - Replace the first 7.3km of the main with 900mm pipeline and replace another 5.5km section further along the main with 900mm pipeline. 4 Ml extra storage capacity at Odecombe Service Reservoir will also be required. The scheme is dependent on 18.10													
Yield	6 Ml/d													
Option	Stage	1. Biodiversity	2. Soils, Contaminants and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Wellbeing	9. Noise & Vibe	10. Water Resources	11. World and Heritage	12. Historic Environment	13. Landscape
Option Name	Construction (qualitative)	---	?	---	---	---	---	---	---	---	0	---	---	---
	Construction (quantitative)	0	+	0	0	0	0	0	+++	0	0	+	0	0
	Operation (qualitative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (quantitative)	0	0	0	0	0	0	+	++	++	++	0	0	0
Construction														
Objective 1: Major negative uncertain effect - Section of the option is routed through the edge and adjacent to the Samarzet Levels and Moor SAC and SPA, and the option is within 10km of the Hostercombe Howe SAC and the Brackett's Coppice SAC. The HRA of the WRMF24 option concludes that uncertain significant effects cannot obviously be excluded with standard measures and the scheme may require bespoke mitigation or detailed design input at the WRMF level. The HRA identifies that for construction the pipeline currently crosses the Samarzet Levels and Moor SPA/Romar and will directly affect this site, and a diverse effect is possible; these would be avoidable with re-routing around the site, or a site choice and the temporary nature of any impacts (plus the generally low intrinsic value of the SPA/Romar habitat) may ensure that effects are not adverse.														
Objective 2: Minor negative effect - Construction of the pipeline may result in loss of land in ALO Grade 1-3, related to a minor section of the option within 1km of the West Moor SSSI, Fivehead Wood and Meadows SSSI, Hostercombe Howe SSSI, Fivehead Arable Field SSSI and West Sedgemoor SSSI. Construction of the option could affect these designated features through direct effects, noise and disturbance although such effects could be reduced through appropriate mitigation and best practice construction measures. More generally construction of the scheme could affect non-designated habitats and species through direct effects or disturbance (e.g. noise, vibration, dust).														
Objective 3: Minor negative effect - Construction of the pipeline may result in loss of land in ALO Grade 1-3, related to a minor section of the option within 1km of the West Moor SSSI, Fivehead Wood and Meadows SSSI, Hostercombe Howe SSSI, Fivehead Arable Field SSSI and West Sedgemoor SSSI. Construction of the option could affect these designated features through direct effects, noise and disturbance although such effects could be reduced through appropriate mitigation and best practice construction measures. More generally construction of the scheme could affect non-designated habitats and species through direct effects or disturbance (e.g. noise, vibration, dust).														
Objective 4: Major positive effect - Kington St Mary Service Reservoir, Fivehead Pumping Station, Ball Hill Pumping Station and Odecombe Service Reservoir are in an PDL which has been assessed as a minor positive effect.														
Objective 5: Major negative effect - The construction of the option would involve works on the River Tene Dr Taunton, West Sedgemoor Main Drain, Fivehead River, Isle - Ode Blk to Fivehead River, Isle River, Parrett - R Ye to West Sedgemoor Drain, Parrett - R Isle to R Ye, Ye to Over Compton, Beasley Brook and Wellham Brook which could affect water flow and/or introduce pollution/debris into the river (although it is not expected that the construction of this option would affect water quality, provided best practice are adhered to and mitigation implemented such as dust suppression, silt containment and emergency response procedures).														
Objective 6: Major negative effect - The construction of the option would involve significant quantities of material (concrete and steel) and embodied carbon (~7,500 tonnes CO2e).														
Objective 7: Moderate negative effect - It is not anticipated that the construction of the option would impact upon climate resilience; however, as a result of sections of the pipeline, pumping stations and service reservoirs would cross Flood Zones 2 and 3, and in consequence, the site of the construction of this infrastructure would be vulnerable to the effects of climate change (flooding).														
Objective 8: Moderate negative uncertain effect - Works could result in increased congestion and disruption/driver delay on the road network due to associated vehicle movements, particularly on M5, and A38, A361, A378, A358, A372, A305, A37 and A3089 roads which could have a negative effect on local air quality. The A37 and A3089 roads lead to the Yeovil City Centre AONB (100m away) and therefore have the potential to impact it. Due to the scale of the works (~45m x 450m) there may be major adverse effects on air quality, although as the location is not within an AONB the effects are considered to be uncertain.														
Objective 9: Major positive effect - The construction of the option would involve significant capital expenditure (capitalised at £45m), resulting in a significant positive effect on the local economy associated with potential employment opportunities and supply chain benefits generated by the development together with spend by construction workers and contractors in the local economy.														
Objective 10: Minor negative effect - Construction emissions, noise and disturbance may affect proximate residential receptors and recreational users. However, effects are likely to be temporary in nature.														
Objective 11: Neutral effect - It is not expected that construction of this option would affect water resources and the construction effects are assessed as neutral.														
Objective 12: Major negative effect - The construction of the option would involve significant quantities of material (concrete and steel).														
Objective 13: Minor positive uncertain effect - There is the possibility that waste building material such as metal and plastic, could potentially be re-used or recycled. However, the significance of this is currently unknown.														
Objective 14: Moderate negative effect - The construction site is within 1km of 536 listed buildings, 21 of which are within 100m; 10 Scheduled Ancient Monuments (4 of which are within 100m); 1 registered battlefield (Battle of Lanepart 1545 (51m)). It also crosses 2 registered park and garden (Hostercombe and Mantecote House). Due to the potential for effects on the setting of these heritage assets, the option has been assessed as having a moderate negative effect on this objective.														
Objective 15: Moderate negative effect - The proposed construction works at the Kington St Mary SR is within Quantock Hills AONB, and Dorset AONB and Blackdown Hills AONB are within 10km of the construction. The construction may introduce above ground infrastructure that could affect the visual amenity of the designated features.														

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Table 4.4 Qualitative Scoring System

Score	Description	Symbol
Major/Significant Positive Effect	Significant positive effect of the water resource option on this objective	+++
Moderate Positive Effect	Moderate positive effect of the water resource option on this objective	++
Minor Positive Effect	Minor positive effect of the water resource option on this objective	+
Neutral	Neutral effect of the water resource option on this objective	0
Minor Negative Effect	Negative effect of the water resource option on this objective	-
Moderate Negative Effect	Moderate effect of the water resource option on this objective	--
Major/Significant Negative Effect	Significant negative effect of the water resource option on this objective	---
Uncertain	The water resource option has an uncertain relationship to the objective or the relationship is dependent on the way in which the aspect is managed. In addition, insufficient information may be available to enable an assessment to be made.	?

Preferred Options

4.4.8 The individual preferred options that comprise the preferred plan for both Wessex Water’s Draft WRMP24 and Revised Draft WRMP24 have been subject to further detailed assessment against the 13 SEA assessment objectives with the results recorded in a matrix similar to that shown in Table 4.3. This has taken account of updated option information such as scheme design, incorporated mitigation measures, stakeholder and regulator views. Where relevant, the commentary section of the matrices includes justification for how the assessment has been reached including those factors previously outlined in paragraph 4.4.3 above, as well as:

- any assumptions used;
- the reasons for any uncertainty, where this is identified; and
- any further mitigation measures with the potential to avoid, minimise, reduce, mitigate or compensate for the identified effect(s) with evidence (where available).

Preferred Programme Assessment

4.4.9 In addition to the consideration of the effects of the individual preferred options, the effects of the preferred programme of options will be undertaken. This will ensure that the strategic effects of the Revised Draft WRMP24 have been identified, described and evaluated.

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Assessment of Plan Alternatives

- 4.4.10 SEA Regulation 12(2) requires the identification, description and evaluation of "*the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme*". The EC guidance¹⁴⁸ on the SEA Directive discusses possible interpretations of handling 'reasonable alternatives'. It states that "*The alternatives chosen should be realistic. Part of the reason for studying alternatives is to find ways of reducing or avoiding the significant adverse effects of the proposed plan or programme. Part of the reason for studying alternatives is to find ways of reducing or avoiding the significant adverse effects of the proposed plan or programme*". Echoing this, Government guidance¹⁴⁹ of the SEA states "*Only reasonable, realistic and relevant alternatives need to be put forward. It is helpful if they are sufficiently distinct to enable meaningful comparisons to be made of the environmental implications of each*". It is an area of plan making that has received considerable scrutiny and challenge.
- 4.4.11 For the purposes of this SEA, the feasible options will be considered as reasonable alternatives to the preferred options (that comprise the preferred plan).
- 4.4.12 In addition, reasonable alternatives that operate at the plan level have been considered and the cumulative effects have been identified, described and for consideration along with the preferred plan. For Wessex Water, this has involved the next suite of best value of options to address the deficit, if the revised preferred programme of options could not be selected.

Assessment of Secondary, Cumulative and Synergistic Effects

- 4.4.13 The SEA Regulations require that the cumulative effects of the Revised Draft WRMP24 are assessed. In addition to the assessments of the preferred programme of options (and alternatives) described above, this would also include the cumulative effects of the Revised Draft WRMP24 in-combination with other plans and programmes. This includes:
- effects of the Revised Draft WRMP24 with other (same) water company plans – an assessment of the effects of the Revised Draft WRMP24 with Wessex Water's Drought Plan and Drainage and Wastewater Management Plan (DWMPs);
 - effects of the Revised Draft WRMP24 with adjacent water company plans and projects (SROs);
 - effects of the Revised Draft WRMP24 as part of the West Country Water Resources draft Regional Plan;
 - effects of the Revised Draft WRMP24 with other plans e.g., Local Plans, National Policy Statements (NPSs);

¹⁴⁸ EC (2003) *Implementation of Directive 2001/42 on the Assessment of the Effects of Certain Plans and Programmes on the Environment*.

¹⁴⁹ Office of the Deputy Prime Minister et al (2005) *A Practical Guide to the Strategic Environmental Assessment Directive*. Available from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7657/practicalguidesea.pdf [Accessed June 2019]

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- effects of the Revised Draft WRMP24 with other Nationally Significant Infrastructure Projects (NSIPs).

4.4.14 When considering the above, the assessment has been qualitative.

4.4.15 There are areas where the Revised Draft WRMP24 preparation has considered some of the other plans and programmes. For example, Wessex's Drought Plan measures have been included in the Revised Draft WRMP24 and the Local Plan growth and population projections have already been included within the demand projections.

4.4.16 In terms of other water company and sector plans, some will have completed assessments in the public domain e.g. DWMPs and which have been used to inform this assessment, where appropriate.

4.4.17 In terms of the NPSs, the majority are not location specific, with two of the three exceptions (aviation, wastewater) making provision for growth outside the DCWW WRMP24 area. At this stage only the NPS for Nuclear Power (EN-6) is considered relevant (and those sites that would have a bearing on the WRMP24 being Hinkley Point C). Further NSIP projects that would be associated with intensive water use have been identified drawing on the NSIP information from the NIP regional project database site <https://infrastructure.planninginspectorate.gov.uk/> (focusing on those NSIPs where DCO consent has been granted by the SoS).

4.4.18 When considering the effects of SROs, the assessment has drawn on relevant information provided for the RAPID gated submission process.

Definitions and Thresholds of Significance

4.4.19 Specific guidance has been developed for what constitutes a significant (major) effect, a moderate effect, a minor effect or a neutral effect for each of the SEA objectives. These 'definitions and thresholds of significance' help to ensure a consistent approach to interpreting the significance of effects and helps the reader understand the decisions made by the assessor.

4.4.20 The full suite of definitions presented in Appendix C.

4.4.21 In developing the definitions and thresholds of significant effects, information has been drawn from:

- definitions used in the SEA of Wessex Water's Drought Plan;
- suggested definitions and thresholds for assessment scoring from the All Company Working Group (ACWG) for application to the SROs; and
- other relevant SEAs of WRMPs and emerging regional plans, notably WRSE.

4.5 Difficulties Encountered in Undertaking the Assessment

4.5.1 The SEA Regulation requires the identification of any difficulties (such as technical deficiencies or lack of knowledge) encountered during the assessment process. The difficulties encountered in undertaking the SEA of the Revised Draft WRMP24 are summarised below:

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- Due to the scope of the WRMP24, and its nature in combining site-specific options into a plan for the whole of Wessex Water's region, a balance needed to be struck between the information provided as an overview of the whole area and the detail of a specific location. Throughout the whole process, it was necessary to ensure the need for enough information to undertake a robust assessment, while retaining its strategic focus.
- Reflecting the strategic nature of the Revised Draft WRMP24 and SEA, for many supply options exact site locations and pipeline routes are approximated at this stage whilst the final design of new infrastructure is unknown. However, the assessments of feasible and preferred options have been based on the best available information provided by Wessex Water and any assumptions used in the assessment (e.g. in respect of pipeline routes) have been highlighted where appropriate. For some option types (e.g. leakage reduction options), the location of works are not known at this stage and would (if taken forward) be subject to more detailed analysis during the implementation of the WRMP24. In consequence, effects on some objectives such as biodiversity are uncertain for these options. Where this is the case, the assessment has reflected this uncertainty.
- When undertaking the assessment of feasible options to support the development of the Revised Draft WRMP24, this has on occasion required revision to option assessments, notably where a previous feasible option has been combined into a new feasible option. These revisions reflect more recent option or other assessment information. In consequence, in some instances, the assessment of effect may have changed. Where this occurs, an earlier assessment work has not been retrospectively changed.
- Whilst the assessment of the cumulative effects of the implementation of the Revised Draft WRMP24 and other plans and programmes has been based on the most up to date information available at the time of writing, in many cases there is a lack of detailed information at this stage to make robust conclusions. This is a typical issue encountered during the assessment of WRMPs.

5. Assessment of the Feasible Options

5.1 Introduction

- 5.1.1 Wessex Water identified a total of 75 feasible options, comprised 59 supply side (resource management) options and 16 'demand-side' (customer, distribution and production) options for the Draft WRMP24. These options, and a summary of the assessment of their construction and operational effects is set out in Sections 5.2 (Feasible Supply Option Assessment), 5.3 (Feasible Demand Management Option Assessment) and 5.4 (Feasible Leakage Option Assessment).
- 5.1.2 Following consultation on the Draft WRMP24, Wessex Water developed further feasible options. These are described and effects summarised in Section 5.5 (Revised Draft WRMP24 Supplementary Feasible Option Assessment). This includes seven revised demand management strategy feasible options which replaced the previous feasible demand management and leakage options considered for the Draft WRMP24.
- 5.1.3 Table 5.33 lists the 86 feasible options that have then be reconsidered by Wessex Water in developing the Revised Draft WRMP24. This list combines those feasible options considered (and retained) from the Draft WRMP24 and the supplementary feasible options.

5.2 Feasible Supply Options Assessment

Supply Options - Transfer Options

- 5.2.1 A total of 18 feasible transfer options were assessed for the Wessex Water WRMP24; these are listed in Table 5.1. A summary of the assessment of these options is presented in Table 5.2 with commentary on the likely significant construction and operational effects provided below. Detailed assessments are contained at Appendix E.

Table 5.1 Feasible Supply Options: Transfers

Option ID	Option Name	Yield	Description
18.01	Somerset Spine main upgrade	6	The option reinforces an existing transfer to move water east towards Yeovil from the Taunton area.
18.02	CALM main upgrade and reversal	10	The option reinforces and reverses an existing transfer that will move water East from the West of our supply system and the Yeovil area towards Warminster area.
18.09	Chippenham to Devizes transfer upgrade	5	The option reinforces an existing transfer to move water from the Chippenham area to the Devizes area to help overcome licence losses in the Devizes area.
18.10	West Somerset Reservoirs transfer upgrade	6	Reinforcement of existing water transfers from the Bridgwater to Taunton area

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Option ID	Option Name	Yield	Description
18.26	Bristol import increase towards Trowbridge	4	An Increase in water imported from Bristol Water in the Bath area and transfer towards the Trowbridge and Melksham area.
18.28	North Bath Resilience	5	The option reinforces and increases connectivity in the existing network between South Bath and North Bath, supported by variation in the import volume from Bristol Water
19.03	SWW Reservoir Pump Storage - Tiverton to Taunton Transfer	10	This option is a Strategic Resource Option (SRO) for the West Country Water Resource Group and has followed the information presented in the Gate One Report (July 2021). The scheme involves pumped storage to increase the yield from a reservoir in Devon, which would reduce the SWW demand on a Exmoor Reservoir. This increases the available resource from which could be treated by South West Water (SWW) and pumped to Wessex Water via a new main.
19.06	Severn-Thames Transfer: WCWRG only at 15MI/d	15	The option transfers additional water from the River Severn, as released through upper River Severn reservoir operation, via Bristol Water's system into Wessex Water's system through new transfers. This option is for WCWRG as a sole requestor (and therefore no Vyrnwy Bypass Cost), with 15 MI/d entering the Wessex Water network.
19.07	Severn-Thames Transfer: WCWRG only at 30MI/d	30	The option transfers additional water from the River Severn, as released through upper River Severn reservoir operation, via Bristol Water's system into Wessex Water's system through new transfers. This option is for WCWRG as a sole requestor.
19.10	Severn-Thames Transfer: multiple receivers at 15MI/d	15	The option transfers additional water from the River Severn, as released through upper River Severn reservoir operation, via Bristol Water's system into Wessex Water's system through new transfers. This option is for multiple receivers, and therefore the costs are different to the sole receiver options.
19.11	Severn-Thames Transfer: multiple receivers at 30MI/d	30	The option transfers additional water from the River Severn, as released through upper River Severn reservoir operation, via Bristol Water's system into Wessex Water's system through new transfers. This option is for multiple receivers, and therefore the costs are different to the sole receiver options.
21.05	Wylve valley source transfer upgrade II	0.3	Network reconfiguration in the Wylve valley to maximise abstraction from an existing source
21.10	Bristol import increase towards Chippenham	4	An Increase in water imported from Bristol Water in the Bath area and transfer towards the Chippenham area.
21.11	Devizes resilience: Calne to Devizes new transfer	0.5	Reinstatement of an existing mothballed source in the Calne area and transferring the water to the Devizes area.
21.12	Pewsey resilience	2	New transfer from south of Devizes towards the Pewsey area to offset licence reductions in the Upper Hampshire Avon and River Bourne area.
22.03	Yeovil transfer to Purbeck	4	Extra supply into the Yeovil area from 18.01 and 18.10 (option 22.03 is dependent upon these), could facilitate a new transfer from Yeovil to Purbeck. This would help transfer water from the West region to the South and South Grid regions.
22.04	Weymouth Source Improvements	2.5	Network reconfiguration and treatment works improvement in the Weymouth area to increase yield from a local source.
30.02	Pump Storage - Quantock Reservoir	5	Pump storage scheme to help conserve reservoir storage in the winter for summer use, by pumping from a local river in winter time, when there is more flow in the river, into a reservoir in the Quantock hills.

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Table 5.2 Feasible Supply Options Assessment Summary: Transfers

Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
18.01	Construction (negative)	---/?	-	-	--	---/?	---	--	--/?	-	0	---	--	--
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	--	0	-	0	0	0	0	-	0	0
	Operation (positive)	0	0	0	0	0	0	+	++	++	++	0	0	0
18.02	Construction (negative)	---	-	-/?	--	---	---	-	-	-	0	---	---	---
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	-/?	0	0	--	0	--	0	0	0	0	-/?	-	-
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0
18.09	Construction (negative)	---/?	-	-/?	-	--	--	-	-	-	0	--	---	---
	Construction (positive)	0	+	0	0	0	0	0	++	0	0	+/?	0	0
	Operation (negative)	0	0	0	-	0	-	0	0	0	0	-/?	-	-
	Operation (positive)	0	0	0	0	0	0	++	++	++	++	0	0	0
18.10	Construction (negative)	-	0	0	0	-/?	-	0	0	-	0	-	-	-
	Construction (positive)	0	+	0	0	0	0	0	+	0	0	+/?	0	0

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
	Operation (negative)	-/?	0	0	0	0	-	0	0	0	0	-/?	-	-
	Operation (positive)	0	0	0	0	0	0	++	++	++	++	0	0	0
18.26	Construction (negative)	---	-	-/?	--	---/?	--	-	-	-	0	---	---	-
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	?	0	0	--	0	-	0	0	0	0	-/?	0	0
	Operation (positive)	0	0	0	0	0	0	+	+	+	+	0	0	0
18.28	Construction (negative)	-	0	-/?	--	-/?	-	-	-	-	0	-	---	---
	Construction (positive)	0	+	0	0	0	0	0	+	0	0	+/?	0	0
	Operation (negative)	-	0	0	--	0	-	0	0	0	0	-/?	0	0
	Operation (positive)	0	0	0	0	0	0	++	++	++	++	0	0	0
19.03	Construction (negative)	---	--	-/?	--	---	---	-	--	-	0	---	---	---
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	-/?	0	---	--	0	---	0	0	0	0	-/?	-	-
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0
19.06	Construction (negative)	---	---	0	--	---	---	-	---	--	0	---	---	---

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	?	0	0	--	0	--	0	0	0	0	-	-	-
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0
19.07	Construction (negative)	---	--	0	--	---	---	-	---	--	0	---	---	---
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	?	0	0	--	0	---	0	0	0	0	-	-	-
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0
19.10	Construction (negative)	---	--	0	--	---	---	-	---	--	0	---	---	---
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	?	0	0	--	0	--	0	0	0	0	-	-	-
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0
19.11	Construction (negative)	---	--	0	--	---	---	-	---	--	0	---	---	---
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	?	0	0	--	0	---	0	0	0	0	-	-	-
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
21.05	Construction (negative)	-	-	0	0	-	-	0	-	-	0	-	-	---
	Construction (positive)	0	0	0	0	0	0	0	+	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	0	0	0	0	0	0	0	0	-
	Operation (positive)	0	0	0	0	0	0	0	0	0	+	0	0	0
21.10	Construction (negative)	---	--	0	--	---/?	--	-	--	--	0	---	---	---
	Construction (positive)	0	0	0	0	0	0	+	+++	0	0	+/?	0	0
	Operation (negative)	?	0	0	0	0	0	0	0	0	0	0	---	--
	Operation (positive)	0	0	0	+/?	0	0	+	+	+	+	0	0	0
21.11	Construction (negative)	---/?	-	0	0	-	-	0	-	0	0	-	---	---
	Construction (positive)	0	0	0	0	0	0	0	+	0	0	+/?	0	0
	Operation (negative)	-	0	0	0	0	-	0	0	0	0	0	-	-
	Operation (positive)	0	0	0	0	0	0	+	0	0	+	0	0	0
21.12	Construction (negative)	-	--	0	0	--	--	0	-	0	0	--	-	--
	Construction (positive)	0	0	0	0	0	0	0	++	0	0	+/?	0	0
	Operation (negative)	?	0	0	0	0	-	0	0	0	0	-	-	-

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
	Operation (positive)	0	0	0	0	0	0	+	+	+	+	0	0	0
22.03	Construction (negative)	---	--	0	--	---	---	-	--	--	0	---	---	---
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	?	0	0	0	0	--	0	0	0	0	0	-	--
	Operation (positive)	0	0	0	0	0	0	+	+	+	+	0	0	0
22.04	Construction (negative)	-/?	0	0	0	--	-	0	-	0	0	--	-	-
	Construction (positive)	0	0	0	0	0	0	0	++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	0	-	0	0	0	0	-	0	0
	Operation (positive)	0	0	0	0	0	0	+	+	+	+	0	0	0
30.02	Construction (negative)	-	-	0	--	-	-	-	-	0	0	-	--	--
	Construction (positive)	0	0	0	0	0	0	0	+	0	0	+/?	0	0
	Operation (negative)	--/?	0	-/?	0	0	-	0	--	--	--	-	-	-
	Operation (positive)	0	0	0	0	0	0	++	++	++	++	0	0	0

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Construction Effects

- 5.2.2 The majority (10 out of 18) of the identified feasible transfer options would require a large capital investment (>£15 million) that would be likely to generate a number of employment opportunities and supply chain benefits as well as increased spend in the local economy by contractors and construction workers. Where this is the case, the options were assessed as having a significant positive effect on the economic and social well-being (SEA Objective 8). Three options were assessed as having a moderate positive effect on this objective (capital spend of between £5 million and <£15 million), whilst 5 were scored as having a minor positive effect (capital spend of between £1 million and <£5 million).
- 5.2.3 Six of the eighteen feasible transfer options have been assessed as having a minor positive impact on soils, geodiversity and land use (SEA Objective 2) during the construction phase. This reflects the location of the options, and reinstatement/use of PDL during their construction.
- 5.2.4 Option 21.10 was assessed as having a minor positive effect on climate change resilience (SEA Objective 7) as increased capacity will increase resilience to flooding and therefore climate change.
- 5.2.5 No other significant positive effects were assessed against any SEA objectives for the construction phase of the feasible transfer options for the Wessex Water WRMP24.
- 5.2.6 Twelve of the eighteen feasible transfer options have been assessed as having a significant negative effect on biodiversity (SEA Objective 1) during the construction phase, with three of these identified as having a significant negative uncertain effect. This reflects the potential for construction works associated with the option to result in the loss of/disturbance to habitats and species as a result of, for example, land take, emissions to air and noise. Where this is likely to be a significant impact, or impact on internationally/nationally designated sites e.g. SAC's, SPA's, Ramsars, Ancient Woodlands and SSSI's amongst others, the effect has been assessed as significant. The remaining six options were assessed as having a minor/minor uncertain negative effect against this objective.
- 5.2.7 Option 19.06 has been assessed as having a significant negative effect on soils, geodiversity and land use during the construction phase (SEA Objective 2) which principally reflects the loss of greenfield land including that which is 'best and most versatile' (land classified as 'best and most versatile land' is generally defined as agricultural land which falls into Grades 1, 2 and 3a). Option 19.06 is situated predominantly Grade 3 agricultural land, but works will also result in the loss of land of grades 2, 4 and also urban land. The option is also within three locations identified as historic landfill sites, with the potential to expose contaminated material during groundworks for construction.
- 5.2.8 Construction activity would generate emissions to air associated with the use of plant and machinery as well as vehicle movements. The majority (10 out of 18) of the identified feasible transfer options have been assessed as having a significant negative effect on air quality (SEA Objective 5), with three of these being assessed as uncertain. This reflects the scale of the option and associated number of vehicle movements and likelihood of

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increased congestion in the area. The remaining eight options were assessed as having a range of minor/moderate effects on air quality.

- 5.2.9 Eight of the feasible transfer options were assessed as having a significant negative effect on greenhouse gas emissions (SEA Objective 6) due to the scale of the embodied carbon in construction materials and the requirement for vehicle movements to transport materials and equipment to site, in addition to the operation of plant and machinery associated with the construction phase. The remaining ten options were assessed as having a range of minor/moderate effects on greenhouse gas emissions.
- 5.2.10 Four of the feasible transfer options have been assessed as having a significant negative effect on economic and social well-being (SEA Objective 8) as construction works could result in increased congestion and disruption/driver delay on the road network due to associated vehicle movements. The proposed options could also directly affect recreational activity on local footpaths, golf courses and other recreational facilities, which may have a negative effect on this objective.
- 5.2.11 Ten of the feasible leakage options have been assessed as having a significant negative effect on waste and materials (SEA Objective 11). This reflects the scale of the options and amount of waste material, e.g. concrete and steel, expected to be produced during construction. The remaining options have been assessed as having a range of minor/moderate effects on this objective. However, all of the feasible transfer options were also assessed as having a minor positive uncertain effect on waste and materials (SEA Objective 11) during the construction phase, as there is a possibility that waste building materials such as steel and plastic, could potentially be re-used or recycled. However, the significance of this is currently unknown.
- 5.2.12 Twelve of the feasible leakage options have been assessed as having a significant negative effect on the historic environment (SEA Objective 12) during the construction phase. This reflects the location of the options and the potential impact on designated sites such as scheduled monuments, listed buildings and World Heritage Sites in the area during the construction phase. Options assessed as having a significant effect are likely to permanently diminish the significance of designated heritage assets. The remaining six options have been assessed as having a range of minor/moderate effects on this objective.
- 5.2.13 Eleven of the feasible leakage options have been assessed as having a significant negative effect on landscape (SEA Objective 13) during the construction phase. Again, this is reflective of the location of the options and the likelihood of construction to have a negative impact on Areas of Outstanding Natural Beauty (AONB's) through construction of visually intrusive infrastructure.
- 5.2.14 No further significant effects have been assessed for the construction phase of the feasible transfer options for the Wessex Water WRMP24, although a range of minor/moderate negative effects have been assessed.

Operational Effects

- 5.2.15 Significant positive effects have been assessed against climate change resilience (SEA Objective 7), economic and social well-being (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10) for six of the feasible transfer options

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during their operation, with a range of minor/moderate and neutral effects assessed for the remaining twelve. This reflects the yield of the options, as the additional water availability provided by the options would help to ensure a continual supply of clean drinking water and increase the resilience of supply, thereby increasing adaptability to the effects of climate change. A continual supply of clean drinking water and increased resilience is likely to also support economic/economic growth and support economic social well-being as well as human health. Those options providing >10 MI/d of additional water being have been assessed as having a significant positive effect on climate change resilience (SEA Objective 7), economic and social well-being (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10).

- 5.2.16 Option 21.10 has been assessed as having a minor positive uncertain effect on flood risk (SEA Objective 4) as the increased capacity achieved by expanding the reservoir at Englishcombe would increase catchment capacity/upstream retention of water, which could have a positive effect on flood risk, particularly as the option is partly situated within an area of Flood Zone 3.
- 5.2.17 No other positive effects were assessed for the feasible transfer options for the Wessex Water WRMP24.
- 5.2.18 The operation of option 19.03 has been assessed as having a significant negative effect on water quality (SEA Objective 3) as the option would result in potential WFD non-compliance due to high ecological risks for the Tamar (River Lyd to River Inny) and the Exe (Barle to Culm) watercourses.
- 5.2.19 Three of the feasible transfer options have been assessed as having a significant negative effect on greenhouse gas emissions (SEA Objective 6) during their operation as they would require significant amounts of energy and generate greenhouse gas emissions (>2000 tonnes CO₂e) associated with abstraction and/or treatment and/or pumping of water. A range of minor, moderate, and neutral effects have been assessed for the remaining fifteen options against this objective.
- 5.2.20 Option 21.10 has been assessed as having a significant negative effect on the historic environment (SEA Objective 12) during its operation as it is expected that there will be significant ongoing impacts on designated heritage assets in the area, which include the City of Bath World Heritage Site as well as numerous scheduled monuments and listed buildings, and two registered parks and gardens.
- 5.2.21 No other significant effects were identified during assessment of the feasible transfer options for the Wessex Water WRMP24, however a range of minor and moderate negative effects have been assessed against various options.

Supply Options - Reservoir Options

- 5.2.22 A total of 13 feasible reservoir options were assessed for the Wessex Water WRMP24; these are listed in Table 5.3. A summary of the assessment of these options is presented in Table 5.4 with commentary on the likely significant construction and operational effects provided below. Detailed assessments are contained at Appendix E.

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Table 5.3 Feasible Supply Options: Reservoirs

Option ID	Option Name	Yield	Description
18.27	Pewsey resilience	2	Network reconfiguration to improve local connectivity and provide increased yield benefit/resilience in the local area in the Upper Hampshire Avon catchment
25.01	Mendips to Stour	35	Option takes water from the Mendips quarry source and pumps this into the river Stour in Dorset to offset licence reductions and maintain existing abstraction in the Stour catchment
25.02	Trowbridge reinforcements and new transfers - source from reservoir	35	Option takes water from the Mendips quarry source and transfers this water through a new transfer and reinforcements of the existing network to the Trowbridge and Warminster area.
25.03	Grid reinforcements - Wylde valley	8	Transfer of water from the Warminster area, potentially supported by a new Mendip quarry reservoir, towards Salisbury
25.04	South Grid Resilience	16	Reinforcement of the existing network to transfer water from the Stour Valley area near Poole towards Dorchester
25.05	North Grid to South Grid reinforcements	11	Reinforcement of the existing network, potentially supported by a new Mendip quarry reservoir, to transfer water from the Warminster area south towards Poole
31.02	Raising Dams - Yeovil Reservoir	Extra 5.4 MI/d and extra 3,456 MI storage capacity	Increase the capacity of an existing reservoir in the Yeovil area and the River Yeo by increasing the size of the current earth embankment.
32.01	Bristol New Reservoir	36	New reservoir in the Bristol Water area in the South Mendips area and a new transfer connection into the Warminster area of the Wessex Water supply system
32.03	New Reservoir - Yeovil	22	New reservoir near Yeovil of 7000MI in a tributary of the River Yeo catchment
32.11	New Reservoir - Mendip	70	New reservoir in the Mendip hills area using a pre-existing quarry site, taking water from the Bristol Avon near Bath to fill via pre-treatment, followed by secondary treatment once extracted from the reservoir, and distributed into the Wessex Water supply system via other transfer options (25.01, 25.02, 25.03, 25.04).
32.13	New Reservoir - Dorset Frome	19.4	New reservoir in the River Frome catchment near Dorchester
32.24	New Reservoir - Parrett	13.4	New reservoir in the River Parrett catchment near Yeovil
32.36	New Reservoir - Bristol Avon	17.6	New reservoir in the Bristol Avon catchment near Chippenham

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Table 5.4 Feasible Supply Options Assessment Summary: Reservoirs

Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
18.27	Construction (negative)	-	--	0	0	-	-	0	-	0	0	-	--	-
	Construction (positive)	0	0	0	0	0	0	0	+	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	0	-	0	0	0	0	0	-	-
	Operation (positive)	0	0	0	+	0	0	+	+	+	+	0	0	0
25.01	Construction (negative)	---	--	--/?	--	---	---	-	--	--	0	---	--	-/?
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	---	0	--	0	0	--	0	0	0	0	0	-	-/?
	Operation (positive)	0	0	0	+	0	0	+++	+++	+++	+++	0	0	0
25.02	Construction (negative)	---	--	--/?	--	---	---	-	--	--	0	---	---	---
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	---	0	0	0	0	--	0	0	0	0	-/?	-	--/?
	Operation (positive)	0	0	0	+	0	0	+++	+++	+++	+++	0	0	0
25.03	Construction (negative)	---	--	--/?	--	---/?	---	-	--	-	0	---	---	---
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
	Operation (negative)	---	0	0	0	0	-	0	0	0	0	-	-	--/?
	Operation (positive)	0	0	0	+	0	0	++	++	++	++	0	0	0
25.04	Construction (negative)	---	--	--/?	--	---	---	-	--	--	0	---	---	---
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	--/?	0	0	0	0	--	0	0	0	0	-	-	--/?
	Operation (positive)	0	0	0	+	0	0	+++	+++	+++	+++	0	0	0
25.05	Construction (negative)	---	--	--/?	--	---	---	-	--	--	0	---	---	---
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	---	0	0	0	0	--	0	0	0	0	-	-	--/?
	Operation (positive)	0	0	0	+	0	0	+++	+++	+++	+++	0	0	0
31.02	Construction (negative)	-	-	-	-	---	-	-	--	-	0	---	--	---
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	-	0	0	0	0	-	0	0	0	0	0	-	--/?
	Operation (positive)	0	0	0	+	0	0	++	++	++	++	0	0	0
32.01	Construction (negative)	---	---	0	--	---	---	-	--	--	0	---	---	---

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
	Construction (positive)	0	0	0	0	0	0	+	+++	0	0	+/?	0	0
	Operation (negative)	-/?	0	---	0	0	---	0	0	0	0	--	---	--
	Operation (positive)	0	0	0	+/?	0	0	+++	+++	+++	+++	0	0	0
32.03	Construction (negative)	--/?	---	0	--	---	---	-	--	--	0	---	--	---
	Construction (positive)	0	0	0	0	0	0	+	+++	0	0	+/?	0	0
	Operation (negative)	-	0	--	0	0	---	0	0	0	0	0	--	--
	Operation (positive)	0	0	0	+/?	0	0	+++	+++	+++	+++	0	0	0
32.11	Construction (negative)	---	---	0	--	---	---	-	--	--	0	---	---	---
	Construction (positive)	0	0	0	0	0	0	+	+++	0	0	+/?	0	0
	Operation (negative)	---	0	--	0	0	---	0	0	0	0	0	-	--
	Operation (positive)	0	0	0	+/?	0	0	+++	+++	+++	+++	0	0	0
32.13	Construction (negative)	---	---	0	--	---	---	-	-	-	0	---	--	--
	Construction (positive)	0	0	0	0	0	0	+	+++	0	0	+/?	0	0
	Operation (negative)	---	0	---	0	0	--	0	0	0	0	0	-	-
	Operation (positive)	0	0	0	+/?	0	0	+++	+++	+++	+++	0	0	0

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
32.24	Construction (negative)	-	---	---	---	---	---	--	--	--	0	---	---	--/?
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	-/?	0	---	0	--	--	0	0	0	0	--/?	-	--
	Operation (positive)	+/?	0	0	+/?	0	0	+++	+++	+++	++	0	0	0
32.36	Construction (negative)	---	--	0	--	---	---	-	-	-	0	---	--	-
	Construction (positive)	0	?	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	-	0	---	0	0	---	0	0	0	0	0	-	-
	Operation (positive)	0	0	0	+/?	0	0	+++	+++	+++	+++	0	0	0

Construction Effects

- 5.2.23 Twelve of the thirteen feasible reservoir options for the Wessex Water WRMP24 would require a large capital investment (>£15 million) that would be likely to generate a number of employment opportunities and supply chain benefits as well as increased spend in the local economy by contractors and construction workers. Where this is the case, the options were assessed as having a significant positive effect on economic and social well-being (SEA Objective 8).
- 5.2.24 Minor positive effects were assessed for several options against soils, geodiversity and land use (SEA Objective 2) and climate change resilience (SEA Objective 7) during the construction phase as PDL will be utilised and increased capacity and resilience to flooding will help to mitigate the effects of climate change.
- 5.2.25 No other significant effects were identified for the feasible reservoir options during the construction phase, against any other SEA objectives.
- 5.2.26 Nine of the thirteen feasible reservoir options for the Wessex Water WRMP24 have been assessed as having a significant negative effect on biodiversity (SEA Objective 1) during their construction. This reflects the potential for construction works associated with the option to result in the loss of/disturbance to habitats and species as a result of, for example, land take, emissions to air and noise. Where this is likely to be a significant impact, or impact on internationally/nationally designated sites e.g. SAC's, SPA's, Ramsars, Ancient Woodlands and SSSI's amongst others, the effect has been assessed as significant. The remaining options have been assessed as having a minor negative effect on biodiversity, other than 32.03 which has been assessed as having a moderate negative uncertain effect as impacts on the Bracket's Coppice SAC cannot be explicitly ruled out without bespoke mitigation.
- 5.2.27 Five of the feasible reservoir options have been assessed as having a significant negative effect on soils, geodiversity and land use (SEA Objective 2). This principally reflects the loss of greenfield land including that which is 'best and most versatile' (land classified as 'best and most versatile land' is generally defined as agricultural land which falls into Grades 1, 2 and 3a). This is predominantly an issue where options include construction of new reservoirs, as large amounts of 'best and most versatile land' will be lost. The remaining options have been assessed as having either a minor or moderate negative effect on this objective.
- 5.2.28 Option 32.24 has been assessed as having a significant negative effect on water quality (SEA Objective 3) and flood risk (SEA Objective 4) during the construction phase as construction would involve works on Park Brook (the reservoir would cover two sections of this watercourse) and on/across the River Yeo (intake and pipeline works) which could affect water flows and/or introduce pollution/debris into these watercourses and would result in the removal of sections of the brook. The majority of the WTW to the CALM main pipeline in addition to the intake and ancillary infrastructure on the River Yeo, a section of the River Yeo to Puddi Moor Reservoir Pipeline and almost half of the reservoir site itself would be located within Flood Zone 3, whilst additional areas of the reservoir site would

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be situated within Flood Zone 2 and therefore these elements may be liable to flooding during the construction period (depending on the timing of construction).

- 5.2.29 Twelve of the thirteen feasible reservoir options have been assessed as having a significant negative effect on air quality (SEA Objective 5) during the construction phase. All these options are located outside of Air Quality Management Areas (AQMA's) however due to the scale of the investment and construction involved it is expected that there would be impacts on traffic congestion during the construction period which could have a negative effect on local air quality. Given the scale of development this is considered to be a major negative effect.
- 5.2.30 Ten of the feasible reservoir options have been assessed as having a significant negative effect on greenhouse gas emissions (SEA Objective 6). This reflects the scale of the options and the amount of embodied carbon associated with materials (>7,500 tonnes CO₂e) and the requirement for vehicle movements to transport materials and equipment to site, in addition to the operation of plant and machinery associated with the construction phase.
- 5.2.31 Twelve of the thirteen feasible reservoir options have been assessed as having a significant negative effect on waste and materials (SEA Objective 11) during construction. This reflects the scale of the options and the amount of waste that will be produced during construction, as well as materials such as concrete and steel to be utilised during the construction phase. However, all of the feasible reservoir options were assessed as having a minor positive uncertain effect on waste and materials (SEA Objective 11) during the construction phase, as there is a possibility that waste building materials such as steel and plastic, could potentially be re-used or recycled. However, the significance of this is currently unknown.
- 5.2.32 Seven of the feasible reservoir options have been assessed as having a significant negative effect on the historic environment (SEA Objective 12) during the construction period. This reflects the location of the options and the potential impact on designated sites such as scheduled monuments, listed buildings and World Heritage Sites in the area during the construction phase. Options assessed as having a significant effect are likely to permanently diminish the significance of designated heritage assets.
- 5.2.33 Eight of the feasible reservoir options have been assessed as having a significant negative effect on landscape (SEA Objective 13) during the construction phase. Again, this is reflective of the location of the options and the likelihood of construction to have a negative impact on Areas of Outstanding Natural Beauty (AONB's) through construction of visually intrusive infrastructure and land take within these designated areas.
- 5.2.34 No further significant effects have been assessed for the construction phase of the feasible reservoir options for the Wessex Water WRMP24, although a range of minor/moderate negative effects have been assessed.

Operational Effects

- 5.2.35 Significant positive effects have been assessed against climate change resilience (SEA Objective 7), economic and social well-being (SEA Objective 8) and human health (SEA Objective 9) for ten of the feasible reservoir options during their operation, whilst two of

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the remaining three options were assessed as having a moderate positive effect, and the remaining option was assessed as having a minor positive effect, against all three objectives. This reflects the yield of the options, as the additional water availability provided by the options and their increased reservoir capacity, would help to ensure a continual supply of clean drinking water and increase the resilience of supply, thereby increasing adaptability to the effects of climate change. A continual supply of clean drinking water and increased resilience is likely to also support economic/economic growth and support economic social well-being as well as human health. Nine of the ten options with significant positive effects against SEA Objectives 7, 8 and 9 were also assessed as having a significant positive effect on water resources (SEA Objective 10), whilst three of the remaining four options were assessed as having a moderate positive effect and one was assessed as having a minor positive effect. Those options providing >10 MI/d of additional water being have been assessed as having a significant positive effect on climate change resilience (SEA Objective 7), economic and social well-being (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10).

- 5.2.36 All the feasible reservoir options were assessed as having a minor positive effect on flood risk (SEA Objective 4) during their operation, for six of these options the effect was assessed as minor uncertain. The increased capacity achieved by creating a new reservoir, or expanding an existing one, would increase catchment capacity/ upstream retention of water, which could have a positive effect on flood risk. This would be of particular benefit where reservoirs sit within Flood Zone 2 or 3.
- 5.2.37 Option 32.24 has been assessed as having a minor, uncertain positive effect on biodiversity (SEA Objective 1) during its operation. Increased water availability during the summer may provide benefits to biodiversity in the Somerset Levels through increased support to ecosystems, although the magnitude of this effect is currently unknown. The effects of increased abstraction during the summer may also have an impact on this, further increasing uncertainty due to uncertainties of water management in the area.
- 5.2.38 No other positive effects were assessed for the operation of the feasible reservoir options for the Wessex Water WRMP24.
- 5.2.39 Seven of the feasible reservoir options for the Wessex Water WRMP24 have been assessed as having a significant negative impact on biodiversity (SEA Objective 1) during their operation, with one of these assessed as a significant negative uncertain effect. The operation of options 25.01 – 25.05 would include transfer of raw water which could impact water dependent designated conservation sites in the area. Creating the reservoir itself could also change the hydrological regime and morphological conditions within the existing quarry and water edge with resulting impacts on ecological populations. The abstraction of water (without compensation flows) may reduce the water levels of downstream watercourses which could potentially affect local and nearby in-river ecological features, e.g. habitats, native wildlife, and migratory species. The operation of options 32.11 and 32.13 would require abstraction from the Bristol Avon and River Frome respectively, which could impact water dependent designated conservation sites. Option 32.11 may reduce flows into the Severn Estuary Ramsar/SPA and Severn Estuary/Mör Hafren SAC, although these are at considerable distance, however due to uncertainties over characterisation of local effects during the WRMP timeframe effects are assessed as significant. For Option 32.13, there is a risk of altering Dorset Heath SAC habitats linked to

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the pipeline route and adverse effects are potentially unavoidable. Of the remaining options, one has been assessed as having a neutral effect with the remaining five being assessed as having a minor/minor uncertain effect.

- 5.2.40 Options 32.01, 32.13, 32.24 and 32.36 have been assessed as having a significant negative effect on water quality (SEA Objective 3) during their operation. The options would be potentially WFD non-compliant at both levels as they carry high ecological risks at Cheddar Yeo, Tadnoll Brook, Cary - source to conf with KSD and Marden respectively. Although there is low chemical risk at the sites this has been assessed as a significant negative effect. Of the remaining options, three were assessed as having a moderate negative effect and the remaining six were assessed as neutral. Options assessed as having a moderate negative effect on this objective were found to have medium ecological or chemical risks.
- 5.2.41 Options 32.01, 32.03, 32.11 and 32.36 have been assessed as having a significant negative effect on greenhouse gas emissions (SEA Objective 6) during their operation. Six of the remaining nine options were assessed as having a moderate negative effect on this objective and three were assessed as having minor effects. The options would require energy and generate greenhouse gas emissions associated with abstraction and/or treatment and/or pumping of water. For those options assessed as having a significant effect, this is reflective of the scale of their operation, as it is likely that they are to require significant operational energy resulting in significant carbon emissions of over 2,000 tonnes CO₂e per annum.
- 5.2.42 Option 32.01 has been assessed as having a significant negative effect on the historic environment (SEA Objective 12) during its operation, whilst two other options have been assessed as having a moderate negative effect and the remaining ten options have been assessed as having a minor negative effect as it is expected that there will be ongoing impacts on designated heritage assets around these options. Option 32.01 would cross 3 scheduled monuments and 32 others would be within 1km of the option. In terms of listed buildings, the option would cross 28 and a further 863 would sit within 1km. The option would also cross a registered park/garden and there would be five others within 1km. It is anticipated that the operation of the option would have significant effects on these heritage assets due to above ground infrastructure having an impact on their settings and direct impacts from the option crossing designated assets.
- 5.2.43 No other significant negative effects were assessed for the feasible reservoir options for the Wessex Water WRMP24 but a range of minor and moderate negative effects were identified for other objectives.

Supply Options - WTW Expansion Options

- 5.2.44 A total of 4 feasible WTW expansion options were assessed for the Wessex Water WRMP24; these are listed in Table 5.5. A summary of the assessment of these options is presented in Table 5.6 with commentary on the likely significant construction and operational effects provided below. Detailed assessments are contained at Appendix E.

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Table 5.5 Feasible Supply Options: WTW Expansions

Option ID	Option Name	Yield	Description
23.01	Yeovil Reservoir peak capacity	4	Increase the peak output capacity of a reservoir near Yeovil by 4MI/d through an upgrade of existing treatment processes.
38.01	Underutilised licence due to water quality: Purbeck	8	Increase the output of a source near Wareham in Dorset through additional treatment processes to treat for water quality issues.
38.06	Under-utilised licence - mid Stour II	6	Increase the output of a source near Poole, Dorset through additional treatment processes to treat for water quality issues.
38.11	Under-utilised licence - East Dorchester Source	6	Increase the output of a source near Dorchester through additional treatment processes to treat for water quality issues.

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Table 5.6 Feasible Supply Options Assessment Summary: WTW Expansions

Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
23.01	Construction (negative)	-	-/?	0	--/?	--	-	-/?	-	-	0	--	-	-
	Construction (positive)	0	0	0	0	0	0	0	++	0	0	+/?	0	0
	Operation (negative)	0	0	0	--/?	-	-	0	0	0	0	-/?	-	-
	Operation (positive)	0	0	0	0	0	0	+	+	+	+	0	0	0
38.01	Construction (negative)	-	-	0	0	---/?	--	0	--	--	0	---	-	--
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	-/?	0	0	0	-	-	0	0	0	0	--/?	-	--
	Operation (positive)	0	0	0	0	0	0	++	++	++	++	0	0	0
38.06	Construction (negative)	-	0	0	0	---/?	-	0	--	-	0	---	-	-
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	-	-	0	0	0	0	--/?	-	-
	Operation (positive)	0	0	0	0	0	0	++	++	++	++	0	0	0
38.11	Construction (negative)	-	0	0	0	---/?	-	0	-	0	0	---	-	-
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
	Operation (negative)	0	0	0	0	0	-	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	0	++	++	++	++	0	0	0

Construction Effects

- 5.2.45 All the feasible WTW expansion options for the Wessex Water WRMP24, other than 23.01, would require a large capital investment (>£15 million) that would be likely to generate a number of employment opportunities and supply chain benefits as well as increased spend in the local economy by contractors and construction workers. Where this is the case, the options were assessed as having a significant positive effect on economic and social well-being (SEA Objective 8).
- 5.2.46 No other significant positive effects were identified for the feasible reservoir options during the construction phase, against any other SEA objectives.
- 5.2.47 Three of the feasible WTW expansion options have been assessed as having a significant negative uncertain effect on air quality (SEA Objective 5) during their construction, with 23.01 being assessed as having a moderate negative effect. All these options are located outside of Air Quality Management Areas (AQMA's) however due to the scale of the investment and construction involved it is expected that there would be impacts on traffic congestion during the construction period which could have a negative effect on local air quality. Given the scale of development this is considered to be a major negative effect, although as the options are not located within an AQMA the effects have been assessed as uncertain.
- 5.2.48 Three of the feasible WTW expansion options have been assessed as having a significant negative uncertain effect on waste and materials (SEA Objective 11) during their construction, with 23.01 being assessed as having a moderate negative effect. This is reflective of the scale of construction required for these options, and the amount of waste that will be produced, as well as materials such as concrete and steel to be utilised during the construction phase. However, all of the feasible WTW expansion options were assessed as having a minor positive uncertain effect on waste and materials (SEA Objective 11) during the construction phase, as there is a possibility that waste building materials such as steel and plastic, could potentially be re-used or recycled. However, the significance of this is currently unknown.
- 5.2.49 No other significant negative effects were identified for the construction phase of the feasible WTW expansion options although a range of minor and moderate negative effects have been assessed against the remaining objectives.

Operational Effects

- 5.2.50 No significant positive or negative effects were identified for the operational phase of the feasible WTW expansion options for the Wessex Water WRMP24.
- 5.2.51 Minor positive effects were assessed for Option 23.01 against climate change resilience (SEA Objective 7), economic and social well-being (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10). The remaining three options were assessed as having moderate positive effects against these objectives during their operation.

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5.2.52 A range of minor and moderate negative effects were assessed for the operation of the feasible WTW expansion options against the SEA Objectives.

Supply Options - WTW Replacement Options

5.2.53 A total of 1 feasible WTW replacement option was assessed for the Wessex Water WRMP24; these are listed in Table 5.7. A summary of the assessment of these options is presented in Table 5.8 with commentary on the likely significant construction and operational effects provided below. Detailed assessments are contained at Appendix E.

Table 5.7 Feasible Supply Options: WTW Replacement

Option ID	Option Name	Yield	Description
39.01	Under-utilised licence - East Weymouth Source	5	Increase utilisation of a small reservoir North of Bath to help meet peak demands through a new pre-treatment works, and use of existing infrastructure for ongoing treatment and distribution.

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Table 5.8 Feasible Supply Options Assessment Summary: WTW Replacement

Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
39.01	Construction (negative)	-	0	--/?	0	---/?	-	0	--	-	0	---	-	--
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	0	-	0	0	0	0	--/?	-	-
	Operation (positive)	0	0	0	0	0	0	++	++	++	++	0	0	0

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Construction Effects

- 5.2.54 A significant positive effect has been assessed for Option 39.01 against economic and social well-being (SEA Objective 8) during the construction phase. This reflects the scale of the option, as it would require a large capital investment (>£15 million) that would be likely to generate a number of employment opportunities and supply chain benefits as well as increased spend in the local economy by contractors and construction workers.
- 5.2.55 No other significant positive effects were assessed for option 39.01.
- 5.2.56 A minor positive effect was assessed against soils, geodiversity and land use (SEA Objective 2) for the construction phase as the option would be situated within the existing operational boundary of the Monkwood Reservoir site and the WTW would be constructed on PDL. Due to the small scale of the construction site, a minor effect has been assessed.
- 5.2.57 A significant negative uncertain effect on air quality (SEA Objective 5) has been assessed for Option 39.01 during the construction phase. The option is located outside of an Air Quality Management Area (AQMA) however due to the scale of the investment and construction involved it is expected that there would be impacts on traffic congestion during the construction period, which could have a negative effect on local air quality. Given the scale of development this is considered to be a major negative effect, although as the option is not located within an AQMA the effects have been assessed as uncertain.
- 5.2.58 The option has also been assessed as having a significant negative effect on waste and materials (SEA Objective 11) during the construction phase. This is reflective of the scale of construction required for the options, and the amount of waste that will be produced, as well as materials such as concrete and steel to be utilised during construction. However, a minor positive uncertain effect was also assessed against waste and materials (SEA Objective 11) during the construction phase, as there is a possibility that waste building materials such as steel and plastic, could potentially be re-used or recycled. However, the significance of this is currently unknown.
- 5.2.59 No other significant negative effects were identified for the construction phase of Option 39.01, however a range of minor and moderate negative effects have been assessed against the remaining objectives.

Operational Effects

- 5.2.60 No significant positive or negative effects were identified for the operational phase of the feasible WTW replacement option, Option 39.01, for the Wessex Water WRMP24.
- 5.2.61 Moderate positive effects were assessed against climate change resilience (SEA Objective 7), economic and social well-being (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10).
- 5.2.62 A moderate uncertain effect has been assessed against waste and materials (SEA Objective 11) and minor negative effects have been assessed against greenhouse gas emissions (SEA Objective 6), historic environment (SEA Objective 12) and landscape (SEA Objective 13) for the operational phase of this option.

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Supply Options - Groundwater Options

5.2.63 A total of 12 feasible groundwater options were assessed for the Wessex Water WRMP24; these are listed in Table 5.9. A summary of the assessment of these options is presented in Table 5.10 with commentary on the likely significant construction and operational effects provided below. Detailed assessments are contained at Appendix E.

Table 5.9 Feasible Supply Options: Groundwater

Option ID	Option Name	Yield	Description
26.13	Reinstatement of mothballed sources - South Andover	3	Reinstatement of an existing mothballed source in the Andover area in the Hampshire Avon catchment, which would require development of a new water treatment works.
26.14	Reinstatement of mothballed sources - North Dorset	1.3	Reinstatement of an existing mothballed source in North Dorset and new treatment for water quality
26.17	Reinstatement of mothballed sources - Winterbourne Abbas	4.5	Reinstatement of an existing mothballed source site west of Dorchester.
26.20	Salisbury licence relocations	4	The option combines two existing unused licenced abstractions and moves these downstream to a new borehole site in the Salisbury area in the Hampshire Avon catchment
27.04	Under-utilised licence - Wimborne Minster	5	The option increases the maximum output of a source on the River Stour near Poole to maximise existing licence use through additional source treatment.
33.01	Groundwater: Aquifer Storage Recharge - Wareham Basin	18 MI/d (14.4 MI/d after RO treatment)	The option builds on earlier work and includes an option to inject water following pre-treatment into an aquifer in the Wareham basin for storage, with subsequent abstraction, treatment and distribution.
34.08	Groundwater - Hampshire Avon I	15	The option involves moving existing abstraction licences in the Hampshire Avon downstream to a new site(s) where there is additional and more sustainable flow in the river. The water would be abstracted, treated and transferred back north into the Wessex Water supply system for distribution.
34.09	Groundwater - Hampshire Avon II	12	The option involves moving existing abstraction licences in the Stour downstream to a new site(s) where there is additional and more sustainable flow in the river. The water would be abstracted, treated and transferred back north into the Wessex Water supply system for distribution.
34.10	Amesbury boreholes	3.97	The option involves moving existing abstraction licences in the Upper Hampshire Avon downstream to a new site(s) where there is additional and more sustainable flow in the river. The water would be abstracted, treated and transferred back north into the Wessex Water supply system for distribution.
34.11	West Salisbury Boreholes	14.3	The option involves moving existing abstraction licences in the Upper Hampshire Avon downstream to a new site(s) where there is additional and more sustainable flow in the river. The water would be abstracted, treated and transferred back north into the Wessex Water supply system for distribution.

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Option ID	Option Name	Yield	Description
34.12	North Salisbury Source Relocation	2.27	The option involves moving existing abstraction licences in the Upper Hampshire Avon downstream to a new site(s) where there is additional and more sustainable flow in the river. Thw water would be abstracted, treated and transferred back north into the Wessex Water supply system for distribution.
39.02	Under-utilised Licence - North Warminster	2.5	The option involved drilling two new boreholes at an existing site north of Warminster to improve the yield of the source

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Table 5.10 Feasible Supply Options Assessment Summary: Groundwater

Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
26.13	Construction (negative)	-	0	-	--	---/?	--	-	-/?	-	0	---	-	-
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	---/?	0	-	--	0	-	0	0	0	0	-/?	0	0
	Operation (positive)	0	0	0	0	0	0	+	+	+	+	0	0	0
26.14	Construction (negative)	-	-	-	--	---/?	--	-	-	-	0	---	-	-
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	-	0	-	--	0	-	0	0	0	0	-/?	-	-
	Operation (positive)	0	0	0	0	0	0	+	+	+	+	0	0	0
26.17	Construction (negative)	-	-	-	--	---/?	--	-	-/?	-	0	---	---	--
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	-	0	-/?	--	0	-	0	0	0	0	-/?	0	0
	Operation (positive)	0	0	0	0	0	0	+	+	+	+	0	0	0
26.20	Construction (negative)	---/?	-	-	-	---/?	--	-	-/?	-	0	---	-	-
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
	Operation (negative)	--/?	0	-	-	0	-	0	0	0	0	-/?	-	-
	Operation (positive)	0	0	0	0	0	0	+	+	+	+	0	0	0
27.04	Construction (negative)	-	0	0	-	--/?	-	0	0	0	0	--	0	-/?
	Construction (positive)	0	+	0	0	0	0	0	++	0	0	+/?	0	0
	Operation (negative)	-	0	-	-	0	-	0	0	0	0	-/?	0	0
	Operation (positive)	0	0	0	0	0	0	++	++	++	++	0	0	0
33.01	Construction (negative)	---	0	-/?	--	---	--	-	-	-	0	---	---	---
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	---	0	---	--	-	--	0	0	0	0	-	-	-
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0
34.08	Construction (negative)	---	-	-	-	---	---	-	--/?	-	0	---	---	---
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	--/?	0	--/?	-	0	---	0	0	0	0	--/?	-	-
	Operation (positive)	0	0	0	0	0	0	++	++	++	++	0	0	0
34.09	Construction (negative)	-	-	-	--	---	--	--	--/?	-	0	---	--	-

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	--/?	0	--/?	--	0	--	0	0	0	0	--/?	-	-
	Operation (positive)	0	0	0	0	0	0	++	++	++	++	0	0	0
34.10	Construction (negative)	-	-	-	0	---/?	--	0	--/?	-	0	---	--	-
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	--/?	0	--/?	0	0	-	0	0	0	?	-/?	-	-
	Operation (positive)	0	0	0	0	0	0	+	+	+	+	?	0	0
34.11	Construction (negative)	-	-	-	--	---	--	-	--/?	-	0	---	-	-
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	--/?	0	--/?	--	0	--	0	0	0	?	--/?	-	-
	Operation (positive)	0	0	0	0	0	0	++	++	++	++	0	0	0
34.12	Construction (negative)	---	-	-/?	--	---/?	--	-	---	-	0	---	---	---
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	---/?	0	--	--	0	-	0	0	0	0	-/?	-	-
	Operation (positive)	+/?	0	0	0	0	0	+	+	+	+	0	0	0

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
39.02	Construction (negative)	-	0	-	--	-	-	-	-	-	0	-	-	-
	Construction (positive)	0	0	0	0	0	0	0	+	0	0	+/?	0	0
	Operation (negative)	-/?	0	-	--	0	-	0	0	0	0	-/?	0	0
	Operation (positive)	0	0	0	0	0	0	+	+	+	+	0	0	0

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Construction Effects

- 5.2.64 All the feasible groundwater options for the Wessex Water WRMP24 have been assessed as having a positive effect on economic and social well-being (SEA Objective 8) during the construction phase. Ten have been assessed as having a significant positive effect, whereas Option 27.04 has been assessed as having a moderate positive effect, and 39.02 as having a minor positive effect on this objective. This reflects the scale of the options. Those ten requiring large capital investment (>£15 million) would be likely to generate a number of employment opportunities and supply chain benefits as well as increased spend in the local economy by contractors and construction workers, and have therefore been assessed as having a significant effect.
- 5.2.65 No other significant positive effects were assessed for the feasible groundwater options. Nine of the twelve feasible groundwater options have been assessed as having a minor positive effect on soils, geodiversity, and land use (SEA Objective 2).
- 5.2.66 Four of the feasible groundwater options, 26.20, 33.01, 34.08 and 34.12, have been assessed as having a significant negative effect on biodiversity (SEA Objective 1) during the construction phase, although the effect of 26.20 has been assessed as uncertain. The remaining eight options have been assessed as having a minor negative effect. This reflects the potential for construction works associated with the respective options to result in the loss of/disturbance to habitats and species as a result of, for example, land take, emissions to air and noise. Where significant adverse impacts are likely to be unavoidable on designated sites e.g. SAC's, SPA's, Ramsars, Ancient Woodlands and SSSI's amongst others, the effect has been assessed as significant.
- 5.2.67 Ten of the feasible groundwater options for the Wessex Water WRMP24 have been assessed as having a significant negative effect on air quality (SEA Objective 5) during the construction phase, with six of these being uncertain. All of these options are located outside of an Air Quality Management Area (AQMA), however due to the scale of the investment and construction involved it is expected that there would be impacts on traffic congestion during the construction period, which could have a negative effect on local air quality. Given the scale of development this is considered to be a significant negative effect for these options (>£15m capital expenditure), although as the options are not located within an AQMA the effects have been assessed as uncertain. Options 33.01 and 34.09 are of an even larger scale (>£50m capital expenditure) and have therefore been assessed as having a significant negative effect on the objective. Options 34.08 and 34.11 are likely to cause significant disruption on roads leading to the Salisbury City Centre AQMA and have therefore been assessed as having a significant negative effect on the objective. Option 27.04 was assessed as having a moderate negative uncertain effect and 39.02 a minor negative effect on this objective.
- 5.2.68 Works and vehicle movements associated with Option 34.12 have been assessed as causing sufficient disruption through increased congestion and disruption/driver delay on the road network, for example on the A36, A303 and B3083, to have a significant negative effect on economic and social well-being (SEA Objective 8).
- 5.2.69 All the feasible groundwater options have been assessed as having a negative effect on greenhouse gas emissions (SEA Objective 6), although only Option 34.08 has been

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assessed as having a significant effect. This reflects the scale of the option and the amount of embodied carbon associated with materials (>7,500 tonnes CO₂e) and the requirement for vehicle movements to transport materials and equipment to site, in addition to the operation of plant and machinery associated with the construction phase.

- 5.2.70 Ten of the feasible groundwater options for the Wessex Water WRMP24 have been assessed as having a significant negative effect on waste and materials (SEA Objective 11) during the construction phase, with Option 27.04 being assessed as having a moderate negative effect, and Option 39.02 a minor negative effect. Again, this is reflective of the scale of construction required for the options, and the amount of waste that will be produced, as well as materials such as concrete and steel to be utilised during construction. However, a minor positive uncertain effect was also assessed against waste and materials (SEA Objective 11) during the construction phase for all options. This reflects the possibility that waste building materials such as steel and plastic, could be re-used or recycled. However, the significance of this is currently unknown.
- 5.2.71 Four of the feasible groundwater options, 26.17, 33.01, 34.08 and 34.12, have been assessed as having a significant negative effect on the historic environment (SEA Objective 12) during the construction phase. These options cross and would be in very close proximity to a number of scheduled monuments, listed buildings, registered parks and gardens as well as conservation areas. Due to the potential for effects on the settings of these heritage assets, these options have been assessed as having a significant negative effect on this objective.
- 5.2.72 Options 33.01, 34.08 and 34.12 have been assessed as having a significant negative effect on landscape (SEA Objective 13). Option 33.01 would be situated within the Dorset AONB and within 10km of the Cranborne chase & West Wiltshire Downs AONB. Option 34.08 would be situated within 1km of both the Cranborne chase & West Wiltshire Downs AONB and the New Forest National Park. Option 34.12 is partially located within Cranborne chase & West Wiltshire Downs AONB. Construction of these options could introduce above ground infrastructure into the designated landscape and could affect the visual amenity of the designated features, resulting in a significant negative effect.
- 5.2.73 No other significant negative effects were assessed for the construction phase of the feasible groundwater options against the SEA Objectives, although a range of minor and moderate effects were identified.

Operational Effects

- 5.2.74 Option 33.01 has been assessed as having a significant positive effect on climate change resilience (SEA Objective 7), economic and social well-being (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10) during its operation. This reflects the yield of the option, as the additional water availability provided by the option would help to ensure a continual supply of clean drinking water and increase the resilience of supply, thereby increasing adaptability to the effects of climate change. A continual supply of clean drinking water and increased resilience is likely to also support economic/economic growth and support economic social well-being as well as human health. All other feasible groundwater options have been assessed as having minor or moderate positive effects across these four objectives.

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- 5.2.75 No other positive effects were assessed for the feasible groundwater options for the Wessex Water WRMP24.
- 5.2.76 Option 33.01 has been assessed as having a significant negative effect on biodiversity (SEA Objective 1) during its operation, and Option 34.12 has been assessed as having a significant negative uncertain effect. The remaining ten options have been assessed as having a range of minor, moderate and uncertain negative effects. The operation of Option 33.01 would involve abstraction from the Sherford River which could impact on water dependent designated conservation sites which has been assessed as having a significant adverse effect. The abstraction of water (without compensation flows) may reduce the water levels of downstream watercourses which could potentially affect local and nearby in-river ecological features. Operation of the scheme would also require resolution of a number of significant uncertainties including: the relationship of the aquifer with Poole Harbour; the effect of abstraction from the Sherford River on the habitats of the SPA/Ramsar and the effects of discharging RO effluent into the harbour. The operation of Option 34.12 would relocate existing licenced volumes to a new borehole, and use these volumes to support flows in the River Till. There will be a number of aspects that would require additional investigation to ensure that there are no incidental adverse effects and these may not be achievable in the WRMP timescales, and the direct effects on the River Avon SAC are likely to attract additional evidential burden at the WRMP level. Significant adverse effects for this option are certain and potentially unavoidable.
- 5.2.77 Option 33.01 has also been assessed as having a significant negative effect on water quality (SEA Objective 3) during the operational phase. The option would be potentially WFD non-compliant due to medium to high ecological risks at several watercourses; Lower Frome and Piddle; the Sherford River and Poole Harbour and has therefore been assessed as having a significant negative effect.
- 5.2.78 Option 34.08 has been assessed as having a significant negative effect on greenhouse gas emissions (SEA Objective 6) during its operation as it would involve significant carbon emissions (>2,000 tonnes CO₂e/annum), associated with additional pumping and treatment.
- 1.1.1 No other significant negative effects have been assessed against the SEA Objectives for the feasible groundwater options for the Wessex Water WRMP24 although a range of minor and moderate negative effects have been identified.

Supply Options - Desalination Options

- 5.2.79 A total of 1 feasible desalination option was assessed for the Wessex Water WRMP24; these are listed in Table 5.11. A summary of the assessment of these options is presented in Table 5.12 with commentary on the likely significant construction and operational effects provided below. Detailed assessments are contained at Appendix E.

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Table 5.11 Feasible Supply Options: Desalination

Option ID	Option Name	Yield	Description
36.02	Desalination: North Coast Bristol Water - Avonmouth	30	This option involves the construction of a seawater desalination plant on the Bristol Channel within the Bristol Water supply area. The water is then distributed throughout the Wessex Water system via a series of pumped transfers and stored in service reservoirs.

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Table 5.12 Feasible Supply Options Assessment Summary: Desalination

Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
36.02	Construction (negative)	---	-	-	-	---	---	-	--/?	-	0	---	---	---
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	---	0	0	-	0	---	0	0	0	0	-	-	-
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0

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Construction Effects

- 5.2.80 Option 36.02 has been assessed as having a significant positive effect on economic and social well-being (SEA Objective 8) during the construction phase. This reflects the scale of the option. Construction of the option would require large capital investment (>£50 million) would be likely to generate a number of employment opportunities and supply chain benefits as well as increased spend in the local economy by contractors and construction workers, and has therefore been assessed as having a significant effect.
- 5.2.81 No other significant positive effects were assessed for the feasible desalination option.
- 5.2.82 A minor positive effect was assessed against soils, geodiversity and land use (SEA Objective 2) as the site would be situated partially on PDL (industrial area and roads).
- 5.2.83 A significant negative effect has been assessed against biodiversity (SEA Objective 1) for the construction phase of Option 36.02. Significant effects have been assessed as certain and adverse effects are likely to be unavoidable with the scheme as it is. Construction of the option will directly affect the habitats of the Severn Estuary sites, which may result in the permanent loss of interest features and supporting habitats and there will almost certainly be displacement effects for bird species. The option is also within close proximity to a number of designated sites including 3 SAC's, 1 Ramsar site, 9 SSSI's and 18 Ancient Woodlands that it is likely to have an impact on.
- 5.2.84 A significant negative effect has been assessed against air quality (SEA Objective 5) for the construction phase of Option 36.02. The option is located outside an Air Quality Management Area (AQMA), however, it is expected that there would be impacts on traffic congestion during the construction period due to the scale of development proposed (>£50m capital expenditure), therefore, a significant effect has been assessed.
- 5.2.85 A significant negative effect has been assessed against greenhouse gas emissions (SEA Objective 6) for the construction phase of Option 36.02. This reflects the scale of the option and the amount of embodied carbon associated with materials (>7,500 tonnes CO₂e) and the requirement for vehicle movements to transport materials and equipment to site, in addition to the operation of plant and machinery associated with the construction phase.
- 5.2.86 The construction of Option 36.02 would involve significant quantities of material (concrete and steel). Due to the scale of the development proposed, this has been assessed as having a significant negative effect on waste and materials (SEA Objective 11). However, a minor positive uncertain effect was also assessed against waste and materials (SEA Objective 11) during the construction phase for this option. This reflects the possibility that waste building materials such as steel and plastic, could be re-used or recycled. However, the significance of this is currently unknown.
- 5.2.87 The construction site is within the Bath WHS, within 1km of numerous Scheduled Ancient Monuments (1 of which it crosses), numerous Listed Buildings including some within and adjacent to the option, and numerous registered parks and gardens and registered battlefields. Due to the potential for construction to affect the settings of these heritage assets, the option has been assessed as having a significant negative effect on this objective.

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- 5.2.88 The proposed construction works for Option 36.02 would be located within the Cotswolds AONB and would introduce above infrastructure into the designated landscapes, causing a negative impact on its setting through the introduction of visually intrusive infrastructure. Due to this, it has been assessed as having a significant negative effect on landscape (SEA Objective 13).
- 5.2.89 No other significant negative effects were assessed for the construction phase of the feasible desalination option against the SEA Objectives, although a range of minor, and one moderate uncertain effect were identified.

Operational Effects

- 5.2.90 Significant positive effects have been assessed against climate change resilience (SEA Objective 7), economic and social well-being (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10) for the operational phase of Option 36.02. This reflects the yield of the option, as the additional water availability provided by the options would help to ensure a continual supply of clean drinking water and increase the resilience of supply, thereby increasing adaptability to the effects of climate change. A continual supply of clean drinking water and increased resilience is likely to also support economic/economic growth and support economic social well-being as well as human health. As the option would provide >10 MI/d of additional water it has been assessed as having a significant positive effect on these four objectives.
- 5.2.91 No other positive effects were assessed for the feasible desalination option for the Wessex Water WRMP24 during the operational phase.
- 5.2.92 A significant negative effect has been assessed against biodiversity (SEA Objective 1) for the operational phase of Option 36.02 as the operation of the option would involve the abstraction of water from the sea, but more notably the release of brine into the sea (in/near protected areas). This could impact on water dependent designated conservation sites and would have significant effects. Certain and adverse effects are potentially unavoidable with the scheme as currently conceived and substantial design / modelling work would be required at WRMP level to confirm acceptability. The release of brine could potentially affect local and nearby aquatic ecological features, e.g. habitats, native wildlife, and migratory species.
- 5.2.93 Option 36.02 has been assessed as having a significant negative effect on greenhouse gas emissions (SEA Objective 6) during its operation as it would involve significant carbon emissions (>2,000 tonnes CO₂e/annum) due to the scale of operation.
- 5.2.94 No other significant negative effects were identified for the operational phase of the feasible desalination option for the Wessex Water WRMP24, although minor negative effects were identified for flood risk (SEA Objective 4), waste and materials (SEA Objective 11), historic environment (SEA Objective 12) and landscape (SEA Objective 13).

Supply Options - Effluent Reuse Options

- 5.2.95 A total of 5 feasible effluent reuse options were assessed for the Wessex Water WRMP24; these are listed in Table 5.13. A summary of the assessment of these options is presented

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in Table 5.14 with commentary on the likely significant construction and operational effects provided below. Detailed assessments are contained at Appendix E.

Table 5.13 Feasible Supply Options: Effluent Reuse

Option ID	Option Name	Yield	Description
37.05	Effluent Re-use - Bridgwater Reservoir	5	The option involves treating water recycling effluent to a high standard and using this to supplement existing refill sources for an existing reservoir in Somerset.
37.06	Effluent Re-use - Quantock Reservoir	3.5	The option involves treating water recycling effluent to a high standard and using this to supplement existing refill sources for an existing reservoir in Somerset.
37.07	Effluent Re-use - North Somerset Non Household	5	The option involves treating water recycling effluent to a high standard and using this to meet non-household (non-potable) water consumption for an industrial site in Somerset
37.10	Effluent Re-use Taunton Canal	5	The option involves treating water recycling effluent to a high standard and using this to supplement existing refill sources for an existing reservoir in Somerset.
37.20	Effluent reuse Poole	22	The option involves treating water recycling effluent to a high standard and using this to supplement river flows to allow continued abstraction from existing sources in the catchment

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Table 5.14 Feasible Supply Options Assessment Summary: Effluent Reuse

Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
37.05	Construction (negative)	-	-	0	-	---/?	--	-	-	0	0	---	--	-
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	-/?	0	0	-	0	-	0	0	0	0	0	-	0
	Operation (positive)	+/?	0	+/?	0	0	0	++	++	++	++	0	0	0
37.06	Construction (negative)	-	-	0	-	---/?	--	-	-	0	0	---	--	--
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	-/?	0	0	-	0	--	0	0	0	0	0	-	-
	Operation (positive)	+/?	0	+/?	0	0	0	+	+	+	+	0	0	0
37.07	Construction (negative)	-	-	0	-	---/?	--	-	-	-	0	---	--	-
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	-/?	0	0	-	0	-	0	0	0	?	-	-	0
	Operation (positive)	+/?	0	+/?	0	0	0	++	++	0	++	0	0	0
37.10	Construction (negative)	-	-	-	-	---/?	--	-	-	0	0	---	-	-
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
	Operation (negative)	---	0	---	-	0	-	0	0	0	0	-	-	0
	Operation (positive)	0	0	0	0	0	0	++	++	++	++	0	0	0
37.20	Construction (negative)	---/?	-	0	-	---	---	-	---/?	-	0	---	---	-
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	---/?	0	---	0	0	---	0	0	0	0	-	-	0
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0

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Construction Effects

- 5.2.96 All five of the feasible effluent reuse options for the Wessex Water WRMP24 have been assessed as having a significant positive effect on economic and social well-being (SEA Objective 8) during the construction phase. This reflects the scale of the options. The requirement for large capital investment (>£15 million) would be likely to generate a number of employment opportunities and supply chain benefits as well as increased spend in the local economy by contractors and construction workers. The options have therefore been assessed as having a significant effect.
- 5.2.97 No other significant positive effects were assessed for the feasible effluent reuse options. Three of the five feasible effluent reuse options have been assessed as having a minor positive effect on soils, geodiversity, and land use (SEA Objective 2).
- 5.2.98 Option 37.20 has been assessed as having a significant negative uncertain effect against biodiversity (SEA Objective 1). This reflects the location of the option and proposed construction works. The option is within 10km of the three Ramsar sites (Dorset Heathlands (10m), Poole Harbour (779m) and Avon Valley (6.9km), two SACs (Dorset Heaths (10m) and Dorset Heaths & Studland Dunes (4.5km) and four SPAs ((Dorset Heathlands (10m), Poole Harbour (779m), Solent and Dorset Coast (5.4km) and Avon Valley (6.9km), as well as being within 1km of six SSSIs and four ancient woodlands. Construction of the scheme could affect these designated features through land take, noise and disturbance although such effects could be reduced through appropriate mitigation and best practice construction measures. The remaining four options have been assessed as having a minor negative effect, for the construction phase.
- 5.2.99 Four of the five feasible effluent reuse options have been assessed as having a significant negative uncertain effect on air quality (SEA Objective 5) during the construction phase, with the remaining option, 37.02, assessed as having a significant negative effect. All of the feasible effluent reuse options are located outside of an Air Quality Management Area (AQMA), however, due to the scale of the investment and construction involved it is expected that there would be impacts on traffic congestion during the construction period, which could have a negative effect on local air quality. Given the scale of development this is considered to be a major negative effect (>£15m - £50m capital expenditure), although as the options are not located within an AQMA the effects have been assessed as uncertain. Option 37.02 is of an even larger scale (>£50m capital expenditure) and has therefore been assessed as having a significant negative effect on the objective.
- 5.2.100 A significant negative effect has been assessed against greenhouse gas emissions (SEA Objective 6) for the construction phase of Option 37.02. This reflects the scale of the option and the amount of embodied carbon associated with materials (>7,500 tonnes CO₂e) and the requirement for vehicle movements to transport materials and equipment to site, in addition to the operation of plant and machinery associated with the construction phase. The remaining four feasible effluent reuse options were assessed as having moderate negative effects against this objective.

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- 5.2.101 All the feasible effluent reuse options have been assessed as having a significant negative effect on waste and materials (SEA Objective 11) during the construction phase. Again, this is reflective of the scale of construction required for the options, and the amount of waste that will be produced, as well as materials such as concrete and steel to be utilised during construction. However, a minor positive uncertain effect was also assessed against waste and materials (SEA Objective 11) during the construction phase for all options. This reflects the possibility that waste building materials such as steel and plastic, could be re-used or recycled. However, the significance of this is currently unknown.
- 5.2.102 Option 37.20 has been assessed as having a significant negative effect on the historic environment (SEA Objective 12) during the construction phase as it the construction site is within 1km of 16 scheduled monuments and 39 listed buildings, one of which is within the option location. Due to the potential for effects on the settings of these heritage assets, the option has been assessed as having a significant negative effect on this objective. The remaining four feasible effluent reuse options were assessed as having a range of minor and moderate effects against this objective.
- 5.2.103 No other significant negative effects were assessed for the construction phase of the feasible effluent reuse options against the SEA Objectives, although a range of minor and moderate effects were identified.

Operational Effects

- 5.2.104 Option 37.20 has been assessed as having a significant positive effect on climate change resilience (SEA Objective 7), economic and social well-being (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10) during its operation. This reflects the yield of the option, as the additional water availability provided by the option would help to ensure a continual supply of clean drinking water and increase the resilience of supply, thereby increasing adaptability to the effects of climate change. A continual supply of clean drinking water and increased resilience is likely to also support economic/economic growth and support economic social well-being as well as human health. All other feasible effluent reuse options have been assessed as having minor or moderate positive effects across these four objectives.
- 5.2.105 No other significant positive effects were assessed for the feasible effluent reuse options for the Wessex Water WRMP24. However, three of the options have been assessed as having minor positive uncertain effects on biodiversity (SEA Objective 1) and water quality (SEA Objective 3).
- 5.2.106 Option 37.10 has been assessed as having a significant negative effect on biodiversity (SEA Objective 1) during the operational phase. The operation of the option would involve the diversion of water from River Tone which could impact on water dependent designated conservation sites. Operational effects would be significant, certain and adverse effects are potentially unavoidable with the scheme as currently conceived and substantial design / modelling work would be required at WRMP level to confirm acceptability. Operation of the option would reduce flows discharged from the WTW hence flows in the Tone, and the discharge from Ham represents a significant portion of flow in dry periods; therefore, there may be less flow available for take-off to supply the Somerset Levels during summer, potentially affecting the invertebrate features of the Ramsar. The remaining feasible

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effluent reuse options have been assessed as having minor or moderate negative uncertain effects against this objective.

- 5.2.107 Option 37.20 has been assessed as having a moderate negative uncertain effect on biodiversity (SEA Objective 1) during the operational phase. The operation of the option would involve the re-routing water destined for Poole Harbour and releasing it into the River Stour which could impact on water dependent designated conservation sites and for which the HRA concludes operational effects would have an uncertain effect with potentially significant effects not being excluded without additional analysis (modelling) of scheme operation and / or identification of acceptable operational mitigation measures.
- 5.2.108 Options 37.10 and 37.20 have been assessed as having significant negative effects on water quality (SEA Objective 3) during the operation phase. Both options would result in potential WFD non-compliance. Option 37.10 would present high ecological risks for the Tone downstream of the Taunton and Bridgwater and Taunton Canal, and would require detailed studies to avoid/inform ecological impacts. Option 37.20 would present medium to high ecological risks for the Stour (Middle downstream Pimperne Brook) and the Stour (Lower) watercourses, and would require detailed hydro-ecological and water quality modelling to ensure no deterioration. The remaining three feasible effluent reuse options have been assessed as having a neutral effect on water quality.
- 5.2.109 No other significant negative effects have been assessed for the operational phase of the feasible effluent reuse options for the Wessex Water WRMP24, although a range of minor and moderate effects have been identified.

Supply Options - Drought Options

- 5.2.110 A total of two feasible drought options were assessed for the Wessex Water WRMP24; these are listed in Table 5.15. A summary of the assessment of these options is presented in Table 5.16 with commentary on the likely significant construction and operational effects provided below. Detailed assessments are contained at Appendix E.

Table 5.15 Feasible Supply Options: Drought

Option ID	Option Name	Yield	Description
41.01	Drought Permit - Stour catchment	2.08 MI/d average and 0MI/d peak	Increase annual licence during drought conditions from sources in the Stour and Frome catchments
41.06	Drought Permit - Bride catchment	0.10 MI/d average and 1.10 MI/d peak	Increase peak output from a source in the Bride catchment during drought conditions

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Table 5.16 Feasible Supply Options Assessment Summary: Drought

Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
41.01	Construction (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Construction (positive)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (negative)	0	0	0	0	0	0	0	0	0	0	-/?	0	0
	Operation (positive)	0	0	0	0	0	++	+	+	+	+	0	0	0
41.06	Construction (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Construction (positive)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (negative)	-	0	0	0	0	0	0	0	0	0	-/?	0	0
	Operation (positive)	0	0	0	0	0	+	+	+	+	+	0	0	0

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Construction Effects

- 5.2.111 No positive or negative effects were identified for the construction phase of the feasible drought options for the Wessex Water WRMP24 as there would be no construction associated with either of the options.

Operational Effects

- 5.2.112 No significant positive or negative effects were identified for the operational phase of the feasible drought options for the Wessex Water WRMP24.
- 5.2.113 A range of minor/moderate positive effects were assessed for both options 41.01 and 41.06 against greenhouse gas emissions (SEA Objective 6), climate change resilience (SEA Objective 7), economic and social well-being (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10).
- 5.2.114 Minor negative uncertain effects were assessed for both options against waste and materials (SEA Objective 11) and a minor negative effect was assessed for Option 41.06 against biodiversity (SEA Objective 1) as there is potential for increased abstraction to have a negative impact on fish species within the Litton Stream.

Supply Options - Other Options

- 5.2.115 A total of 3 other feasible options were assessed for the Wessex Water WRMP24; these are listed in Table 5.17. A summary of the assessment of these options is presented in Table 5.18 with commentary on the likely significant construction and operational effects provided below. Detailed assessments are contained at Appendix E.

Table 5.17 Feasible Supply Options: Other

Option ID	Option Name	Yield	Description
27.05	AIM: break performance commitments	3.6	Break AIM performance commitments at two sites in the Dorset Stour catchment
38.04	Under-utilised licence - Mid Dorset	10.46	Increase output from an existing source in mid dorset through additional water quality treatment
38.12	Under-utilised licence - North East Bath	12	Increase output from an existing source near weymouth through some additional water quality treatment

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Table 5.18 Feasible Supply Options Assessment Summary: Other

Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
27.05	Construction (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Construction (positive)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	0	+	+	+	+	0	0	0
38.04	Construction (negative)	-	-	0	--	---/?	-	--	-	--	0	---	--	--
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	--	0	-	0	0	0	?	-	0	0
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0
38.12	Construction (negative)	-	-	0	-	---/?	-	-	-	--	0	---	-	--
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	-	0	-	0	0	0	0	-	-	-/?
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0

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Construction Effects

- 5.2.116 No positive or negative effects have been assessed against Option 27.05 against any SEA Objective for the construction phase as there is no construction associated with this option.
- 5.2.117 Options 38.04 and 38.12 have been assessed as having a significant positive effect on economic and social well-being (SEA Objective 8) during the construction phase. This reflects the scale of the options. The requirement for large capital investment (>£15 million) would be likely to generate a number of employment opportunities and supply chain benefits as well as increased spend in the local economy by contractors and construction workers. The options have therefore been assessed as having a significant effect.
- 5.2.118 No other significant positive effects were assessed for the other feasible supply options for the Wessex Water WRMP24.
- 5.2.119 Both options 38.04 and 38.12 have been assessed as having a significant negative uncertain effect against air quality (SEA Objective 5) during the construction phase. Both options are located outside of an Air Quality Management Area (AQMA), however, due to the scale of the investment and construction involved it is expected that there would be impacts on traffic congestion during the construction period, which could have a negative effect on local air quality. Given the scale of development this is considered to be a major negative effect (>£15m - £50m capital expenditure), although as the options are not located within an AQMA the effects have been assessed as uncertain.
- 5.2.120 Both options 38.04 and 38.12 have also been assessed as having a significant negative uncertain effect against waste and materials (SEA Objective 11) during the construction phase. This is reflective of the scale of construction required for the options, and the amount of waste that will be produced, as well as materials such as concrete and steel to be utilised during construction. However, a minor positive uncertain effect was also assessed against waste and materials (SEA Objective 11) during the construction phase for options 38.04 and 38.12. This reflects the possibility that waste building materials such as steel and plastic, could be re-used or recycled. However, the significance of this is currently unknown.
- 5.2.121 No other significant negative effects have been assessed for the other feasible supply options for the Wessex Water WRMP24, however a range of minor and moderate effects have been identified against remaining SEA Objectives.

Operational Effects

- 5.2.122 Options 38.04 and 38.12 have been assessed as having a significant positive effect on climate change resilience (SEA Objective 7), economic and social well-being (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10) during the operational phase. This reflects the yield of the options, as the additional water availability provided by the option would help to ensure a continual supply of clean drinking water and increase the resilience of supply, thereby increasing adaptability to the effects of climate change. A continual supply of clean drinking water and increased resilience is

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likely to also support economic/economic growth and support economic social well-being as well as human health. Option 27.05 has been assessed as having a minor positive effect across these four objectives.

- 5.2.123 No other significant, moderate or minor positive effects were assessed for the other operational phase of the feasible supply options for the Wessex Water WRMP24.
- 5.2.124 No significant negative effects were identified for the operational phase of the other feasible supply options for the Wessex Water WRMP24. However, a range of minor and moderate negative effects were assessed for options 38.04 and 38.12 against flood risk (SEA Objective 4), greenhouse gas emissions (SEA Objective) and waste and materials (SEA Objective 11), as well as minor/minor uncertain negative effects on the historic environment (SEA Objective 12) and landscape (SEA Objective 13) for Option 38.12.

5.3 Feasible Demand Management Options Assessment

- 5.3.1 A total of nine feasible demand management options were assessed for the Wessex Water WRMP24; these are listed in Table 5.19. A summary of the assessment of these options is presented in Table 5.20 with commentary on the likely significant construction and operational effects provided below. Detailed assessments are contained at Appendix E.

Table 5.19 Feasible Demand Management Options

Option ID	Option Name	Yield	Description
9.16	Temporary Use Bans	13.11	Temporary usage bans applied to customers, to restrict customer water usage in areas where the water company is experiencing, or may experience, a serious shortage of water for distribution, in addition to level 1 and 2 water efficiency and leakage activities
9.17	Non Essential Use Bans	3.73	Imposing a ban on non-essential use, such as hosepipes or sprinklers to water gardens and wash cars.
44.01	AMR metering with HH and NHH WEFF to achieve 48 MI/d + labelling (57 MI/d total)	57	One of the combined metering and water efficiency options. Aim is to reduce demand by 48MI/d by 2050 through smart metering, which would be complemented by water efficiency schemes. Smart metering would incur higher start-up costs, but would improve customer visibility and have lower operational costs arising from meter readings. 57MI/d total benefit achieved with government labelling also included.
44.02	Compulsory basic metering with HH and NHH WEFF to save 34 MI/d + labelling (43 MI/d total)	43	One of the combined metering and water efficiency options. Aim is to reduce demand by 34MI/d by 2050 through compulsory basic metering at the remainder of our unmetered customers, as well as renewing old meters. This would be complemented by a larger water efficiency programme. 43MI/d total benefit achieved with government labelling also included.
44.03	AMR metering with HH and NHH WEFF to achieve 34 MI/d + labelling (43 MI/d total)	43	One of the combined metering and water efficiency options. Aim is to reduce demand by 34MI/d by 2050 through smart metering, which would be complemented by water efficiency schemes. 43MI/d total benefit achieved with government labelling also included.
44.04	Compulsory basic metering with HH and NHH WEFF to save 16	25	One of the combined metering and water efficiency options. Aim is to reduce demand by 16MI/d by 2050 through compulsory basic metering at the remainder of our unmetered customers, as well as renewing old meters. This would be complemented by a larger water efficiency

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Option ID	Option Name	Yield	Description
	MI/d + labelling (25 MI/d total)		programme. 25MI/d total benefit achieved with government labelling also included
44.05	AMR metering with HH and NHH WEF to achieve 16 MI/d + labelling (25 MI/d total)	25	One of the combined metering and water efficiency options. Aim is to reduce demand by 16MI/d by 2050 through smart metering, which would be complemented by water efficiency schemes. 25MI/d total benefit achieved with government labelling also included
44.06	Smart metering by 2035 + labelling (57 MI/d total)	57	One of the combined metering and water efficiency options. Aim is to reduce demand by 48MI/d by 2035 through smart metering. 25MI/d total benefit achieved with government labelling also included
44.07	Smart metering by 2040 + labelling (57 MI/d total)	57	One of the combined metering and water efficiency options. Aim is to reduce demand by 48MI/d by 2040 through smart metering. 25MI/d total benefit achieved with government labelling also included

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Table 5.20 Feasible Demand Management Options Assessment Summary

Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
9.16	Construction (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Construction (positive)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	++	+++	+++	+++	+++	0	0	0
9.17	Construction (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Construction (positive)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	++	+	+	+	+	0	0	0
44.01	Construction (negative)	0	0	0	0	--/?	---	0	-/?	0	0	---	0	0
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	-	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	+++	+++	+++	+++	+++	0	0	0
44.02	Construction (negative)	0	0	0	0	-/?	---	0	-/?	0	0	---	0	0
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
	Operation (negative)	0	0	0	0	-	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	+++	+++	+++	+++	+++	0	0	0
44.03	Construction (negative)	0	0	0	0	--/?	---	0	-/?	0	0	---	0	0
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	+++	+++	+++	+++	+++	0	0	0
44.04	Construction (negative)	0	0	0	0	-/?	---	0	-/?	0	0	---	0	0
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	+++	+++	+++	+++	+++	0	0	0
44.05	Construction (negative)	0	0	0	0	--/?	---	0	-/?	0	0	---	0	0
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	+++	+++	+++	+++	+++	0	0	0
44.06	Construction (negative)	0	0	0	0	--/?	---	0	-/?	0	0	---	0	0

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	-	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	+++	+++	+++	+++	+++	0	0	0
44.07	Construction (negative)	0	0	0	0	--/?	---	0	-/?	0	0	---	0	0
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	-	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	+++	+++	+++	+++	+++	0	0	0

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- 5.3.2 A total of seven of the feasible demand management options (Options 44.01 – 44.07) assessed would require a large capital investment that would be likely to generate a number of employment opportunities and supply chain benefits as well as increased spend in the local economy by contractors and construction workers. Where this is the case, the options were assessed as having a significant positive effect on economic and social well-being (SEA Objective 8). The remaining two options were assessed as having a neutral effect on economic and social well-being.
- 5.3.3 No other significant positive effects were assessed against any SEA objectives for the construction phase of the feasible demand management options. Options 9.16 and 9.17 were assessed as having no positive effects at all during construction, reflecting the nature of the bans requiring no infrastructure or physical resource to implement.
- 5.3.4 Options 44.01 – 44.07 were all assessed as having a significant negative effect on greenhouse gas emissions (SEA Objective 6) and waste and materials (SEA Objective 11). This reflects the scale of the options and the amount of embodied carbon associated with materials (>7,500 tonnes CO₂e) as well as the actual waste materials produced during construction. Options 44.01 – 44.07 were assessed as also having a minor positive uncertain effect on waste and materials (SEA Objective 11) during the construction phase, as there is a possibility that waste building materials such as steel and plastic, could potentially be re-used or recycled. However, the significance of this is currently unknown.
- 5.3.5 No further significant effects were identified against the SEA objectives for the demand management options, with no negative effects assessed against any objectives for options 9.16 and 9.17. Again, this reflects the nature of the options themselves and lack of physical resource required for their implementation.
- 5.3.6 Minor and moderate uncertain negative effects were assessed against air quality (SEA Objective 5) and economic and social well-being (SEA Objective 8) for options 44.01 – 44.07. This is due to the potential for construction works to be located within an Air Quality Management Area (AQMA) and construction traffic to contribute negatively to local air quality. Works could also result in increased congestion and disruption/driver delay on the road network due to associated vehicle movements.

Operational Effects

- 5.3.7 All the feasible demand management options assessed for the Wessex Water WRMP24 were assessed as having a positive effect on greenhouse gas emissions (SEA Objective 6), climate change resilience (SEA Objective 7), economic and social well-being (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10). Options 44.01 – 44.07 were assessed as having a significant positive effect on all of the aforementioned objectives, whereas Option 9.16 was assessed as having a significant positive effect on SEA Objectives 7 – 10 and a moderate positive effect on SEA Objective 6 and Option 9.17 was assessed as having a moderate positive effect on SEA Objective 6 and a minor positive effect on SEA Objectives 7 -10.

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- 5.3.8 The reduction in demand for water associated with options 44.01 – 44.07 will result in a reduction in energy use through reduced demand for energy to abstract, treat and put water back into supply, with an associated reduction in carbon emissions. For these options, this has been assessed as sufficient to cause a significant positive effect on greenhouse gas emissions (SEA Objective 6) (>1000 tonnes CO2e/annum).
- 5.3.9 The additional water availability provided by the options would help to ensure a continual supply of clean drinking water and increase the resilience of supply, thereby increasing adaptability to the effects of climate change. A continual supply of clean drinking water and increased resilience is likely to also support economic/economic growth and support economic social well-being as well as human health. For options 44.01 – 44.07 and 9.16 this has been assessed as having a significant effect against climate change resilience (SEA Objective 7), economic and social well-being (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10).
- 5.3.10 No other significant positive effects were identified in the assessment of the feasible demand management options for the Wessex Water WRMP24 for the operational phase.
- 5.3.11 No significant negative effects were assessed for the operational phase of the feasible demand management options for the Wessex Water WRMP24.
- 5.3.12 Minor negative effects were assessed against air quality (SEA Objective 5) for five of the nine options during their operation, due to the vehicle movements required during their operation (between 5 and 35 per day) and the subsequent negative effects on local air quality.

5.4 Feasible Leakage Options Assessment

- 1.1.2 A total of six feasible leakage options were assessed for the Wessex Water WRMP24; these are listed in Table 5.21. A summary of the assessment of these options is presented in Table 5.22 with commentary on the likely significant construction and operational effects provided below. Detailed assessments are contained at Appendix E.

Table 5.21 Feasible Leakage Options

Option ID	Option Name	Yield	Description
43.01	Leakage scenario: fast reduction to 2030	25.3	Leakage reduction from a blend of leakage policies. Achieves 50% leakage reduction by 2050, with an initial fast reduction of 10MI/d in the first 5yrs.
43.02	Leakage scenario: linear reduction to 2050	25.3	Leakage reduction from a blend of leakage policies. Achieves a linear 50% leakage reduction by 2050 (approximately 1MI/d per year).
43.03	Leakage scenario: slow reduction to 2050	9.96	Leakage reduction from a blend of leakage policies. Does not achieve 50% leakage reduction
43.04	Leakage scenario: very slow reduction to 2050	2.3	Leakage reduction from a blend of leakage policies. Does not achieve 50% leakage reduction
43.05	Leakage scenario: hold steady from 2035	10.1	Leakage reduction from a blend of leakage policies. Linear reduction in leakage for 10yrs. Does not achieve 50% leakage reduction

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Option ID	Option Name	Yield	Description
43.06	Leakage scenario: hold steady from 2040	15.2	Leakage reduction from a blend of leakage policies. Linear reduction in leakage for 15yrs. Does not achieve 50% leakage reduction

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Table 5.22 Feasible Leakage Options Assessment Summary

Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
43.01	Construction (negative)	0	0	0	-/?	--/?	---	-/?	-/?	-/?	0	---	0	0
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	+++	+++	+++	+++	+++	0	0	0
43.02	Construction (negative)	0	0	0	-/?	--/?	---	-/?	-/?	-/?	0	---	0	0
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	+++	+++	+++	+++	+++	0	0	0
43.03	Construction (negative)	0	0	0	-/?	--/?	---	-/?	-/?	-/?	0	---	0	0
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	++	++	++	++	++	0	0	0
43.04	Construction (negative)	0	0	0	-/?	-/?	---	-/?	-/?	-/?	0	---	0	0

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	++	+	+	+	+	0	0	0
43.05	Construction (negative)	0	0	0	-/?	-/?	---	-/?	-/?	-/?	0	---	0	0
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	++	+++	+++	+++	+++	0	0	0
43.06	Construction (negative)	0	0	0	-/?	--/?	---	-/?	-/?	-/?	0	---	0	0
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	++	+++	+++	+++	+++	0	0	0

FINAL REVISED**Construction Effects**

- 5.4.1 All six of the feasible leakage options for the Wessex Water WRMP24 have been assessed as having a significant positive effect on economic and social well-being (SEA Objective 8) during the construction phase, as they would require a large capital investment that would be likely to generate a number of employment opportunities and supply chain benefits as well as increased spend in the local economy by contractors and construction workers.
- 5.4.2 No other significant positive effects were assessed against any SEA objectives for the construction phase of the feasible demand management options.
- 5.4.3 All six of the feasible leakage options for the Wessex Water WRMP24 were assessed as having a significant negative effect on greenhouse gas emissions (SEA Objective 6) and waste and materials (SEA Objective 11). This reflects the scale of the options and the amount of embodied carbon associated with materials (>7,500 tonnes CO₂e) and the requirement for vehicle movements to transport materials and equipment to site, in addition to the operation of plant and machinery associated with the construction phase, as well as the actual waste materials produced during construction. However, all six were also assessed as having a minor positive uncertain effect on waste and materials (SEA Objective 11) during the construction phase, as there is a possibility that waste building materials such as steel and plastic, could potentially be re-used or recycled. However, the significance of this is currently unknown.
- 5.4.4 A range of minor/moderate uncertain negative effects were assessed for all of the feasible leakage options against flood risk (SEA Objective 4), air quality (SEA Objective 5), climate change resilience (SEA Objective 7), economic and social well-being (SEA Objective 8) and human health (SEA Objective 9) during the construction phase. The location of construction for the options is currently unknown, and therefore may take place within Flood Zones 2/3 or Air Quality Management Areas (AQMA's). Works could also result in increased congestion and disruption/driver delay on the road network due to associated vehicle movements as well as directly affect activity on parks/footpaths/golf courses and other recreational facilities in the area. Emissions, noise, and general disturbance from construction activities may also have a negative impact proximate residential receptors and recreational users dependent on location.
- 5.4.5 No further significant negative effects were identified against the SEA objectives for the feasible leakage options for the Wessex Water WRMP24.

Operational Effects

- 5.4.6 All the feasible leakage options assessed for the Wessex Water WRMP24 were assessed as having a positive effect on greenhouse gas emissions (SEA Objective 6), climate change resilience (SEA Objective 7), economic and social well-being (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10). Options 43.01 and 43.02 were assessed as having a significant positive effect on all the aforementioned objectives, whereas Options 43.05 and 43.06 were assessed as having a significant positive effect on SEA Objectives 7 – 10 and a moderate effect on SEA Objective 6. Options 43.03 and 43.04 were assessed as having a range of minor and moderate positive effects on SEA Objectives 6 – 10.

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- 5.4.7 The reduction in demand for water associated with options 43.01 and 43.02 will result in a reduction in energy use through reduced demand for energy to abstract, treat and put water back into supply. For these options, this has been assessed as sufficient to cause a significant positive effect (>1000 tonnes CO₂e/annum) on greenhouse gas emissions (SEA Objective 6).
- 5.4.8 The additional water availability provided by the options would help to ensure a continual supply of clean drinking water and increase the resilience of supply, thereby increasing adaptability to the effects of climate change. A continual supply of clean drinking water and increased resilience is likely to also support economic/economic growth and support economic social well-being as well as human health. For options 43.01, 43.02, 43.05 and 43.06 this has been assessed as having a significant effect against climate change resilience (SEA Objective 7), economic and social well-being (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10).
- 5.4.9 No other significant positive effects were identified in the assessment of the feasible leakage options for the Wessex Water WRMP24 for the operational phase.
- 5.4.10 No minor, moderate, or significant negative effects were assessed for the operational phase of the feasible leakage options for the Wessex Water WRMP24.

5.5 Revised Draft WRMP24 Supplementary Feasible Options Assessment

- 5.5.1 Following the publication and consultation on the Draft WRMP24 and requests from regulators, a number of additional feasible options were developed by Wessex Water. This included a refinement of schemes (including modifications to option design) as well as use of scheme variants and in a number of instances, where previous feasible options were combined to form a new feasible option. This latter change was made following a request by a regulator to Wessex Water to provide options that presented as complete schemes which including all option components (rather than appearing as dependencies).
- 5.5.2 In some cases, when developing such combined options, a review of the component options and their assessment has been undertaken, and on occasion, further amendments have been made, reflecting refinements such as design, yield or carbon estimates.
- 5.5.3 For options 70.01 to 70.07 (each of which is formed of two or more component options) it should be noted that assessments have been undertaken based on the cumulative effect identified from the assessments of the component options. In consequence, to avoid undue repetition, whilst overall effects are recorded, for the detail, reference should be made to the component option assessments.
- 5.5.4 For the demand management options, Wessex Water took a revised and integrated approach to the development of seven portfolios, each of which comprised household and non-household efficiency measures, leakage measures and metering, of differing scales and phasing, reflecting elements of the original feasible list. This reflected a heightened expectation on demand management from customers, regulators and policy makers. These revised options replaced the previous feasible demand management and leakage options considered for the Draft WRMP24.

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Supplementary Supply Options - Transfer Options

5.5.5 A total of 23 supplementary feasible transfer options were assessed; these are listed in Table 5.23. A summary of the assessment of these options is presented in Table 5.24 with commentary on the likely significant construction and operational effects provided below. Detailed assessments are contained at Appendix E.

Table 5.23 Supplementary Supply Options - Transfer Options

Option ID	Option Name	Yield	Description
21.06	Yeovil transfer to Dorchester new transfer	14	Transfer of water from the Yeovil area towards Dorchester
21.13	Salisbury to Amesbury to Tidworth Transfer	15	Transfer of water from the Salisbury area north towards Amesbury.
21.14	Amesbury to Tidworth transfer	6	Transfer of water from the Amesbury areas north towards Ludgershall
54.01	Mendips to Grid	35	Modular option to take water from the Mendip quarry option and distribute this into the Wessex Water system near Warminster
54.03	Mendips to Trowbridge	35	Modular option to take water from the Mendip quarry option and distribute this into the Wessex Water system near Trowbridge
54.04	Mendips to Grid and Trowbridge	70	Modular option to take water from the Mendip quarry option and distribute this into the Wessex Water system near Trowbridge and Warminster
54.05	Mendips to Stour - 50% capacity	17.5	Modular option to take water from the Mendip quarry option and distribute this into the river Stour to enable abstraction to continue at existing sources.
54.06	Mendips to Grid - 50% capacity	17.5	Modular option to take water from the Mendip quarry option and distribute this into the Wessex Water system near Warminster.
54.07	Mendips to Trowbridge - 50% capacity	17.5	Modular option to take water from the Mendip quarry option and distribute this into the Wessex Water system near Trowbridge
54.08	Mendips to Grid and Trowbridge - 50% capacity	35	Modular option to take water from the Mendip quarry option and distribute this into the Wessex Water system near Trowbridge and Warminster
55.01	CALM main upgrade and reversal - 10MI/d pt1	10	Option to reverse an existing transfer in the supply system and take water from the Yeovil area and transfer this towards the Warminster area
55.03	South Grid Resilience - 8MI/d	8	Option to increase transfer of water from sources in the Dorset stour towards Yeovil
55.05	North Grid to South Grid reinforcements - 5.5MI/d	5.5	Option to increase transfer of water from the Warminster area towards Poole, potentially supported by a new Mendip quarry option
55.09	Trowbridge to Devizes	12	Option to transfer water from the Trowbridge area towards Devizes to help offset the impact of licence reductions and meet local demand
55.10	Trowbridge to Market Lavington	5	Option to transfer water south from the Trowbridge area towards the Hampshire Avon catchment, potentially supported by the Mendip Quarries or an increase in the import from Bristol Water

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Option ID	Option Name	Yield	Description
55.11	Trowbridge to North Warminster	5	Option to transfer water south from the Trowbridge area towards the Hampshire Avon catchment, potentially supported by the Mendip Quarries or an increase in the import from Bristol Water
55.12	Yeovil to Dorchester - 7MI/d	7	Modular option to transfer water from the Yeovil area towards Dorchester
58.01	Bristol Bulk Import - 15MI/d	15	Option to increase the existing import from Bristol Water near Bath and transfer this through the system towards the Hampshire Avon catchment
70.01	Bristol Import and onwards transfer I	4	This option is a combination of the following schemes: 18_26 and 18_09
70.02	Bristol Import and onwards transfer II	4	This option is a combination of the following schemes: 18_26 and 18_09 and 21_12
70.03	Bristol Import and onwards transfer III	15	This option is a combination of the following schemes: 58_01 and 55_10 and 55_11 and 55_09
70.04	Bristol Import and onwards transfer IV	15	This option is a combination of the following schemes: 58_01 and 55_10 and 55_11
70.05	Bristol Import and onwards transfer V	15	This option is a combination of the following schemes: 58_01 and 55_10 and 55_11 and 21_13 and 25_03 and 21_14

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Table 5.24 Supplementary Supply Options - Transfer Options Assessment Summary

Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
21.06	Construction (negative)	--/?	--	-	--	---	---	-	--	--	0	---	---	---
	Construction (positive)	0	++	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	--/?	0	-/?	-	0	---	0	0	0	0	-/?	-	--
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0
21.13	Construction (negative)	--	--	-/?	--	---/?	--	-	--	--	0	---	--	--
	Construction (positive)	0	++	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	--/?	0	-/?	0	0	--	0	0	0	0	-/?	-	-
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0
21.14	Construction (negative)	--	--	0	0	---/?	--	0	--	--	0	---	---	--
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	--/?	0	-/?	0	0	---	0	0	0	0	-/?	-	-
	Operation (positive)	0	0	0	0	0	0	++	++	++	++	0	0	0
54.01	Construction (negative)	---/?	--	-	--	---	---	-	--	-	0	---	---	---
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
	Operation (negative)	---/?	0	---	--	0	-	0	0	0	0	-/?	--	--
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0
54.03	Construction (negative)	---/?	--	-/?	--	---	---	-	--	-	0	---	---	-
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	---/?	0	---	-	0	---	0	0	0	0	-	-	-
	Operation (positive)	0	0	0	+	0	0	+++	+++	+++	+++	0	0	0
54.04	Construction (negative)	---/?	---	-/?	--	---	---	-	---	--	0	---	---	---
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	---/?	0	---	--	0	---	0	0	0	0	-/?	--	--
	Operation (positive)	0	0	0	+	0	0	+++	+++	+++	+++	0	0	0
54.05	Construction (negative)	---/?	--	-/?	--	---	---	-	--	--	0	---	--	--
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	---/?	0	---	0	0	-	0	0	0	0	0	-	-/?
	Operation (positive)	0	0	0	+	0	0	+++	+++	+++	+++	0	0	0
54.06	Construction (negative)	---/?	--	-/?	--	---	---	-	--	-	0	---	---	---

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	---/?	0	---	--	0	-	0	0	0	0	-/?	--	--
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0
54.07	Construction (negative)	---/?	--	-/?	--	---	---	-	--	-	0	---	---	-
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	---/?	0	---	-	0	--	0	0	0	0	-/?	-	-
	Operation (positive)	0	0	0	+	0	0	+++	+++	+++	+++	0	0	0
54.08	Construction (negative)	---/?	---	-/?	--	---	---	-	---	--	0	---	---	---
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	---/?	0	---	--	0	--	0	0	0	0	-/?	--	--
	Operation (positive)	0	0	0	+	0	0	+++	+++	+++	+++	0	0	0
55.01	Construction (negative)	---	-	-/?	--	---	---	-	--	--	0	---	---	---
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	--/?	0	-/?	--	0	---	0	0	0	0	-/?	-	-
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
55.03	Construction (negative)	---	--	-/?	--	---	---	-	--	--	0	---	---	--
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	---/?	0	-/?	0	0	--	0	0	0	0	-/?	-/?	--/?
	Operation (positive)	0	0	0	0	0	0	++	++	++	++	0	0	0
55.05	Construction (negative)	---	--	-/?	--	---/?	---	-	--	--	0	---	---	---
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	---/?	0	-/?	0	0	--	0	0	0	0	-/?	-	--
	Operation (positive)	0	0	0	0	0	0	++	++	++	++	0	0	0
55.09	Construction (negative)	-	--	-/?	--	---/?	--	-	--	--	0	---	---	--
	Construction (positive)	0	+/?	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	---/?	0	-/?	0	0	--	0	0	0	0	-	-	-
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0
55.10	Construction (negative)	-	--	-/?	--	-	--	-	-	-	0	--	--	-/?
	Construction (positive)	0	0	0	0	0	0	0	++	0	0	+/?	0	0
	Operation (negative)	0	0	-/?	0	0	-	0	0	0	0	-/?	-	-

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
	Operation (positive)	0	0	0	0	0	0	++	++	++	++	0	0	0
55.11	Construction (negative)	-	--	-/?	--	-	--	-	-	-	0	--	--	-
	Construction (positive)	0	0	0	0	0	0	0	++	0	0	+/?	0	0
	Operation (negative)	0	0	-/?	0	0	-	0	0	0	0	-/?	-	-
	Operation (positive)	0	0	0	0	0	0	++	++	++	++	0	0	0
55.12	Construction (negative)	---/?	--	-	--	---	---	-	---	--	0	---	---	---
	Construction (positive)	0	++	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	--/?	0	-/?	-	0	--	0	0	0	0	-/?	-	--
	Operation (positive)	0	0	0	0	0	0	++	++	++	++	0	0	0
58.01	Construction (negative)	---	---	-/?	--	---	---	-	---	--	0	---	---	---
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	--	0	--	0	0	0	0	-/?	-	-
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0
70.01	Construction (negative)	---/?	-	-/?	--	---/?	--	-	-	-	0	---	---	---
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
	Operation (negative)	0	0	0	0	0	-	0	0	0	0	-/?	-	-
	Operation (positive)	++	0	0	0	0	0	++	++	++	++	0	0	0
70.02	Construction (negative)	---/?	--	-/?	--	---/?	---	-	-	-	0	---	---	---
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	0	--	0	0	0	0	-/?	-	-
	Operation (positive)	0	0	0	0	0	0	++	++	++	++	0	0	0
70.03	Construction (negative)	---	---	-/?	--	---	---	-	---	--	0	---	---	---
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	-/?	--	0	---	0	0	0	0	-/?	-	-
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0
70.04	Construction (negative)	---	---	-/?	--	---	---	-	---	--	0	---	---	---
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	-/?	--	0	--	0	0	0	0	-/?	-	-
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0
70.05	Construction (negative)	---	---	--/?	--	---	---	-	---	---	0	---	---	---

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
	Construction (positive)	0	++	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	---/?	0	-/?	--	0	---	0	0	0	0	--/?	-	--/?
	Operation (positive)	0	0	0	+	0	0	+++	+++	+++	+++	0	0	0

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Construction Effects

- 5.5.6 All of the supplementary feasible transfer options have been assessed as having a positive effect on economic and social wellbeing (SEA Objective 8) associated with the capital expenditure they would require to be implemented which could have a positive effect on the local economy through the generation of job opportunities and use of local supply chains, in addition to increased spend in the local economy by contractors and construction workers. A total of 21 of the 23 supplementary feasible transfer options would require a large capital investment (capital spend of \geq £15 million) and as such have been assessed as having a significant positive effect on this objective. The two remaining options (55.10 and 55.11) were assessed as having a moderate positive effect on this objective (capital spend of between £5 million and $<$ £15 million).
- 5.5.7 No further significant positive effects were identified during the assessment of the construction phase of the preferred supply options. However, fourteen of the supplementary feasible transfer options were assessed as having a minor positive, minor positive uncertain or moderate positive effect on soils, geodiversity and land use (SEA Objective 2) during the construction phase. This reflects that construction of these options would involve reinstatement or use of previously developed land/sites or would involve works within the boundary of existing operational sites.
- 5.5.8 All of the supplementary feasible transfer options were assessed as having a negative effect on biodiversity (SEA Objective 1) during construction. This reflects the potential for construction works associated with the options to result in the loss of/disturbance to habitats and species as a result of, for example, land take, emissions to air and noise. A total of seven options (55.01, 55.03, 55.05, 58.01, 70.03, 70.04 and 70.05) were assessed as having a significant negative effect, whilst a further ten (54.01, 54.03, 54.04, 54.05, 54.06, 54.07, 54.08, 55.12, 70.01 and 70.02) were assessed as having a significant negative uncertain effect on this objective. This reflects that construction works as currently proposed under each of these options would lead to direct effects on internationally or nationally designated sites such as SACs, SPAs, Ramsars, SSSIs, LNRs and Ancient Woodlands. In some cases however, there may be opportunities to mitigate or avoid effects at the scheme level (for example, through detailed routing and modifications to pipeline routes and through the application construction best practice/mitigation). Of the remaining options, two were assessed as having a moderate negative effect, one was assessed as having a moderate negative uncertain effect and three were assessed as having a minor negative effect on this objective.
- 5.5.9 All of the supplementary feasible transfer options were assessed as having a negative effect on soils, geodiversity and land use during the construction phase (SEA Objective 2) which principally reflects the loss of greenfield land including that which is 'best and most versatile' (land classified as 'best and most versatile land' is generally defined as agricultural land which falls into Grades 1, 2 and 3a). A total of six options (54.04, 54.08, 58.01, 70.03, 70.04 and 70.05) were assessed as having a significant negative effect on this objective due to the scale of the options and area of greenfield land they would cross. Some of the options identified as having a significant negative effect (58.01, 70.03, 70.04, 70.05) were also identified as crossing areas identified as historic landfill sites, with the potential to expose contaminated material during groundworks for construction. Of the

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remaining options, 15 were assessed as having a moderate negative effect, whilst two were assessed as having a minor negative effect.

- 5.5.10 Construction activity associated with all of the supplementary feasible transfer options would generate emissions to air associated with construction vehicle movements, in addition to the use of plant and machinery. A total of 15 of the supplementary feasible transfer options have been assessed as having a significant negative effect on air quality (SEA Objective 5), reflecting the scale of the construction works (capital spend >£50m) and the anticipated associated number of vehicle movements and likelihood of increased congestion in the area areas surrounding the works. A further six options were assessed as having a significant negative uncertain effect on SEA Objective 5 as they are also likely to have a significant negative effect on air quality, as given the scale of works (capital spend between >£15m and <£50m) effects are likely to be significant, however, there remains some uncertainty. The remaining two options were assessed as having a minor negative effect on SEA Objective 5.
- 5.5.11 The construction of water resources infrastructure requires the use of materials with embodied carbon in addition to construction vehicle movements to transport materials and equipment to site alongside the operation of plant and machinery, with resultant effects on greenhouse emissions. All of the supplementary feasible transfer options were assessed as having negative effect on greenhouse gas emissions (SEA Objective 6) and a total of 17 of the options were assessed as having a significant negative effect in this regard, due to the scale of the embodied carbon (>7,500 tCO₂e). The remaining six options were all assessed as having a moderate negative effect on SEA Objective 6.
- 5.5.12 Construction works and vehicle movements associated with the development of water resources infrastructure has the potential to result in increased congestion and disruption/driver delay on the road network due to associated vehicle movements with resultant effects on economic and social wellbeing (SEA Objective 8). Additionally, construction works can directly affect recreational activity on local footpaths, golf courses and other recreational facilities, which may have a negative effect on this objective. All of the supplementary feasible transfer option were assessed as having a negative effect in this regard, with seven options (54.04, 54.08, 55.12, 58.01, 70.03, 70.04 and 70.05) being assessed as having a significant negative effect in this regard. Of the remaining options, 12 were assessed as having a moderate negative effect whilst four were assessed as having a minor negative effect.
- 5.5.13 All of the supplementary feasible transfer options were assessed as having a negative effect on human health (SEA Objective 9), associated with the potential for construction works to result in emissions, noise and disturbance which may affect proximate residential receptors and or recreational users. Given the scale of works and number of potential receptors affected, option 70.05 was assessed as having a significant negative effect in this regard. Of the remaining options, 14 were assessed as having a moderate negative effect, whilst 8 were assessed as having a minor negative effect against SEA Objective 9.
- 5.5.14 All of the supplementary feasible transfer options were assessed as having a negative effect on waste and materials (Objective 11) during construction, associated with the requirement for materials such as concrete, steel and plastic to undertake the construction works and the associated potential for waste generation. The majority of the options (21

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total) were assessed as having a significant negative effect on SEA Objective 11, as they are anticipated to require significant quantities of construction materials, given the scale of works and capital spend. The remaining two options (55.10 and 55.11) were assessed as having a moderate negative effect. Whilst a negative effect was identified against all of the options, a minor positive uncertain effect was also identified against all options, due to the potential for waste building materials such as steel and plastic, to be re-used or recycled (however, the significance of this is unknown and as such there remains uncertainty).

- 5.5.15 The majority of the supplementary feasible transfer options (19 total) were assessed as having a significant negative effect on the historic environment (SEA Objective 12). This reflects that for each of these options construction works would intersect with designated heritage assets and sites, including Scheduled Monuments, Listed Buildings, Registered Parks and Gardens, Registered Battlefields and Conservation Areas. Of this total, six options (58.01, 70.01, 70.02, 70.03, 70.04 and 70.05) would involve works within the City of Bath World Heritage Site. As such these options have the potential to directly affect components (whether assets or landscapes) of the UNESCO inscriptions. More generally, construction works could lead to impacts on the setting of heritage assets surrounding the works. As such, the remaining four options were assessed as having a moderate negative effect on SEA Objective 12.
- 5.5.16 All of the supplementary feasible transfer options have been assessed as having a negative effect on landscape (SEA Objective 13) during construction. This reflects the potential for construction works to introduce above ground infrastructure that could affect the visual amenity and affect local landscape/townscape. A total of 14 of the supplementary feasible transfer options were assessed as having a significant negative effect on SEA Objective 13 as they would require works within one or more designated landscapes, such as the Cotswolds AONB (21.06, 55.12, 58.01, 70.03, 70.04 and 70.05), the Cranborne Chase and West Wiltshire Downs AONB (54.01, 54.04, 54.06, 54.08, 55.0, 55.05 and 70.05) and the North Wessex Downs AONB (70.01 and 70.02) and as such would introduce above ground infrastructure potentially affecting the amenity of the designated landscapes. Of the remaining options, five were assessed as having a moderate negative effect, three were assessed as having a minor negative effect and one was assessed as having a minor negative uncertain effect on SEA Objective 13.
- 5.5.17 No other significant negative effects were identified during the assessment of the supplementary feasible transfer options, however, a range of minor negative, minor negative uncertain, moderate negative and moderate negative uncertain effects were identified against SEA Objectives 3 (water quality), 4 (flood risk) and 7 (climate change resilience).

Operational Effects

- 5.5.18 All of the supplementary feasible transfer options were assessed as having a positive effect against climate change (SEA Objective 7), economic and social wellbeing (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10) as the additional design capacity (water) they would provide would help to ensure a continual supply of clean drinking water, supporting economic/population growth, generating a positive effect on human health and increasing adaptability to the effects of climate change. Fifteen options were assessed as having a significant positive effect against all four

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objectives as they would lead to a major increase in design capacity (≥ 10 MI/d). The remaining eight options were assessed as having a moderate positive effect (additional design capacity of 5MI/d to <10 MI/d).

- 5.5.19 No other significant positive effects were identified during the assessment of the operational phase of the supplementary feasible transfer options; however, minor and moderate positive effects were identified against SEA Objective 4 (flood risk) and SEA Objective 1 (biodiversity) respectively, for a limited number of options.
- 5.5.20 A total of ten options (54.01, 54.03, 54.04, 54.05, 54.06, 54.07, 54.08, 55.03, 55.05 and 70.05) were assessed as having a significant negative uncertain effect on biodiversity (SEA Objective 1) during operation. For all of the options listed this relates to their dependency on linked option 32.11 (involving the construction of a reservoir at the Tor Quarry). The HRA risk review indicates that during operation, the risks associated with the linked option 32.11 would be high and that significant effects certain and adverse effects would be potentially unavoidable; and as such substantial further design and modelling work would be required to confirm acceptability. Whilst it is assumed that the Asham SSSI (unit of the Mendip Woodlands SAC) site would not be directly affected by raised water-levels in the quarry void (as the SAC is located above the top of the void), it is possible that the volume of water will introduce changes in the local microclimate or local hydrogeology that might affect the European site habitats. In practice these effects may be limited, particularly in comparison to ongoing impacts from an operational quarry (and there would be many enhancement opportunities for the SAC) but are likely to be difficult to robustly characterise within the WRMP delivery timescales. The HRA risk review undertaken to date also indicates that it is possible that bats associated with sites in the area (Mells Valley SAC, North Somerset and Mendip Bats SAC, Bath and Bradford-on-Avon Bats SAC) might have some functional relationships with the habitats of the quarry or the woodland, which would not be resolvable within the WRMP development timescales unless existing datasets (e.g., from the operational quarry) are available. In practice, most of the risk is associated with developing a robust evidence base for the WRMP HRA, rather than the likelihood of adverse effects on the SAC, so it may be possible to pursue these options (subject to additional data collection) if delivery is not until late in the planning period. Of the remaining options, a further five were assessed as having a moderate negative uncertain effect against SEA Objective 1.
- 5.5.21 The majority of the supplementary feasible transfer options (20 total) were assessed as having a negative effect on water quality (SEA Objective 3) during operation. Of this number, a total of seven options (54.01, 54.03, 54.04, 54.05, 54.06, 54.07, 54.08) were assessed as having a significant negative effect. For options 54.01, 54.03, 54.04, 54.06, 54.07, 54.08, this was due to the WFD Level 2 assessment concluding that the options would be non-compliant (certainty level – “risk”), associated with linked option 32.11 and its effects on the Mendips groundwater body as well as Whatley Brook associated with the creation of a new reservoir at the Tor Quarry, in addition to effects on Bristol Avon associated with the new abstraction. For option 54.05, the significant negative effect was associated with the WFD Level 2 assessment concluding that the option would be non-compliant (certainty level – “quantifiable”), associated with the new discharge of raw water from the new Mendips Quarry reservoir in to the Stour (Middle u/s Pimperne Brook) Water Body. The remaining 13 options were assessed as having a minor negative uncertain effect.

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- 5.5.22 All of the supplementary feasible transfer options were assessed as having a negative effect on greenhouse gas emissions (SEA Objective 6) during operation, as operational energy required for pumping/processes would result in carbon emissions. A total of seven options (21.06, 21.14, 54.03, 54.04, 55.01, 70.03 and 70.05) were assessed as having a significant negative effect in this regard as the operation of the options would result in significant annual carbon emissions (>2,000 tonnes CO2e/annum). Of the remaining options, a total of ten were assessed as having a moderate negative effect (operational carbon emissions of 500 to 2,000 tonnes CO2e/annum) and six options were assessed as having a minor negative effect (operational carbon emissions of 10 to 500 tonnes CO2e/annum) on SEA Objective 6
- 5.5.23 No further significant negative effects were identified during the assessment of the operational phase of the supplementary feasible transfer options; however, a range of minor negative, minor negative uncertain, moderate negative and moderate negative uncertain effects were identified against SEA Objectives 4 (flood risk), 11 (waste and materials), 12 (historic environment) and 13 (landscape).

Supplementary Supply Options – WTW Expansion Options

- 5.5.24 One supplementary feasible WTW expansion option was assessed; this is summarised in Table 5.25. A summary of the assessment of this option is presented in Table 5.26 with commentary on the likely significant construction and operational effects provided below. Detailed assessment is contained at Appendix E.

Table 5.25 Supplementary Supply Options - WTW Expansion Options

Option ID	Option Name	Yield	Description
70.06	Increased Reservoir Capacity and East Transfer	4	This option is a combination of the following schemes: 23_01 and 18_02.

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Table 5.26 Supplementary Supply Options - WTW Expansion Options Assessment Summary

Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
70.06	Construction (negative)	---/?	-/?	-/?	--	---	---	-	-	-	0	---	---	---
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	-/?	0	0	--	-	---	0	0	0	0	-/?	-	-
	Operation (positive)	+	0	0	0	0	0	+	+	+	+	0	0	0

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Construction Effects

- 5.5.25 Construction of the supplementary feasible WTW expansion option (option 70.06) would require a large capital investment (>£15 million) that would be likely to generate a number of employment opportunities and supply chain benefits, in addition to increased spend in the local economy by contractors and construction workers. As such the option has been assessed as having a significant positive effect on economic and social well-being (SEA Objective 8).
- 5.5.26 No other significant positive effects were identified in the assessment of option 70.06, however, minor positive or minor positive uncertain effects were identified against SEA objectives 2 (soils, geodiversity and land use) and 11 (waste and materials).
- 5.5.27 Option 70.06 has been assessed as having a significant negative uncertain effect on biodiversity (SEA Objective 1) during the construction phase. This reflects that the option would require works crossing the Whitesheet Hill SSSI and two areas of Ancient Woodland which could result in the loss of/disturbance to habitats and species at these sites. The HRA of the option concludes that during construction, whilst effects are possible (as pathways present), significant or significant adverse effects clearly avoidable with established scheme-level avoidance or mitigation measures. There would also be potential for works to lead to noise/vibration and dust deposition effects on other designated and non-designated sites in proximity to the works, in addition to effects resulting from direct land take on non-designated greenfield land.
- 5.5.28 Construction activity would generate emissions to air associated with the use of plant and machinery as well as vehicle movements. Option 70.06 has been assessed as having a significant negative effect on air quality (SEA Objective 5), reflecting the scale of construction works and associated number of vehicle movements and likelihood of increased road traffic congestion in the area.
- 5.5.29 The construction of option 70.06 has been assessed as having a significant negative effect on greenhouse gas emissions (SEA Objective 6). This is due to the scale of the embodied carbon in construction materials and the requirement for vehicle movements to transport materials and equipment to site, in addition to the operation of plant and machinery associated with the construction phase (which would total more than 7,500 tonnes CO₂e).
- 5.5.30 Option 70.06 has also been assessed as having a significant negative effect on waste and materials (SEA Objective 11), reflecting the scale of construction works and associated material requirements (e.g. concrete, steel and plastics) and anticipated generation of construction waste. However, the option was also assessed as having a minor positive uncertain effect on SEA Objective 11 during the construction, as there is a possibility that waste building materials such as steel and plastic, could potentially be re-used or recycled, however, the significance of this effect is currently unknown.
- 5.5.31 Option 70.06 has been assessed as having a significant negative effect on the historic environment (SEA Objective 12) during the construction phase. This is due to the construction works being situated within 1km of a large number of designated heritage assets including: 25 Scheduled Ancient Monuments, seven of which the works would intersect (Pen Pits quern quarries SE of Hart Hill; White Sheet Hill ditch; Neolithic causewayed camp, White Sheet Downs; Barrow 270m north east of White Sheet camp;

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White Sheet camp; Later Iron Age enclosure, Ilchester Mead; and Bowl barrow 1050m north east of Wood Farm); over 400 Listed Buildings, including Donne Lane Head, which the works would cross, and a further 24 within 0.1km; five Registered Parks and Gardens (including Montacute House, which the works would cross; and 12 Conservation Areas and potential for direct harm or loss of such assets where works intersect with assets directly in addition to potential effects on the setting of assets.

- 5.5.32 Option 70.06 has also been assessed as having a significant negative effect on landscape (SEA Objective 13), as the construction works associated with the option would be partially located within the Cranborne Chase & West Wiltshire Downs AONB and would be within 1.5km of the Dorset AONB. As such, construction of the option could introduce above ground infrastructure into the designated landscapes and could affect the visual amenity of the designated features.
- 5.5.33 No further significant negative effects were identified in the assessment of the construction phase of option 70.06. However, a range of minor negative, minor negative uncertain and moderate negative effects were identified against SEA Objectives 2 (soils geodiversity and land use), 3 (water quality), 4 (flood risk), 7 (climate change resilience) and 9 (human health).

Operational Effects

- 5.5.34 The operational phase of option 70.06 has been assessed as having a significant negative effect on greenhouse gas emissions (SEA Objective 6), as the operation of the option would result in significant carbon emissions (>2,000 tonnes CO2e) associated with the energy required for treatment and pumping of water.
- 5.5.35 No other significant negative or positive effects were identified during the assessment of option 70.06. However, minor positive effects were identified against SEA Objectives 1 (biodiversity), 7 (climate change resilience), 8 (economic and social well-being), 9 (human health), and 10 (water resources), whilst a range of minor negative, minor negative uncertain and moderate negative effects were identified against SEA Objectives 1 (biodiversity), 4 (flood risk), 5 (air quality), 11 (waste and material), 12 (historic environment) and 13 (landscape).

Supplementary Supply Options – Groundwater Options

- 5.5.36 A total of three supplementary feasible groundwater options were assessed; these are listed in Table 5.27. A summary of the assessment of these options is presented in Table 5.28 with commentary on the likely significant construction and operational effects provided below. Detailed assessments are contained at Appendix E.

Table 5.27 Supplementary Supply Options - Groundwater Options

Option ID	Option Name	Yield	Description
56.01	Salisbury Boreholes - 7MI/d	7	Modular option to move existing abstractions downstream in the Hampshire Avon

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Option ID	Option Name	Yield	Description
59.01	Stream Support at Mere	5	Option to provide stream support to an upper Dorset Stour tributary to allow current abstraction in the catchment to continue
70.07	Hampshire Avon Boreholes and Transfer	14.4	This option is a combination of the following schemes: 21_13 and 21_14 and 34_11

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Table 5.28 Supplementary Supply Options - Groundwater Options Assessment Summary

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
56.01	Construction (negative)	--	--	-	--	---/?	--	-	--	--	0	---	--	-
	Construction (positive)	0	++	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	--/?	0	--/?	0	0	---	0	0	0	0	--/?	-	-
	Operation (positive)	0	0	0	0	0	0	++	++	++	++	0	0	0
59.01	Construction (negative)	-	-	-/?	--	-	-/?	-	-	-	0	-	--	--
	Construction (positive)	0	+	0	0	0	0	0	+	0	0	+/?	0	0
	Operation (negative)	0	0	0	-/?	0	-	0	0	0	0	-/?	-	-
	Operation (positive)	0	0	0	0	0	0	++	++	++	++	0	0	0
70.07	Construction (negative)	--	---	-/?	--	---	---	-	---	--	0	---	---	--
	Construction (positive)	0	++	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	--/?	0	--/?	0	0	---	0	0	0	0	--/?	-	-
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0

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Construction Effects

- 5.5.37 All the supplementary feasible groundwater options have been assessed as having a positive effect on economic and social well-being (SEA Objective 8) during the construction phase. Two (56.01 and 70.07) have been assessed as having a significant positive effect, whereas Option 59.01 has been assessed as having a minor positive effect, and 39.02. This reflects the scale of the options. The two requiring large capital investment (>£15 million) would be likely to generate a number of employment opportunities and supply chain benefits as well as increased spend in the local economy by contractors and construction workers, and have therefore been assessed as having a significant positive effect on this objective.
- 5.5.38 No other significant positive effects were assessed against any SEA objectives for the construction phase of the supplementary feasible groundwater options. Two of the options were assessed as having a moderate positive effect on soils, geodiversity and land use (SEA Objective 2), and one a minor positive effect, during construction, as the sites would be situated partially on previously developed land (industrial area and roads).
- 5.5.39 Option 70.07 has been assessed as having a significant negative effect on soils, geodiversity and land use (SEA Objective 2), during the construction phase, with Option 56.01 being assessed as having a moderate negative effect and Option 59.01 a minor negative effect. This principally reflects the loss of greenfield land including that which is 'best and most versatile' (land classified as 'best and most versatile land' is generally defined as agricultural land which falls into Grades 1, 2 and 3a).
- 5.5.40 Option 70.07 has also been assessed as having a significant negative effect on air quality (SEA Objective 5) during construction, with option 56.01 assessed as having a significant negative uncertain effect. This due to the scale of the investment and construction activity involved, including vehicle movements and the likelihood of increased traffic congestion with could have a negative effect on local air quality. Option 70.07 is estimated to have a capital spend >£50m and has therefore been assessed as having a significant negative effect on the objective. Option 56.01 is estimated to have a capital spend between >£15m and <£50m) and are effects are likely to be significant, however, there remains some uncertainty.
- 5.5.41 All of the supplementary feasible transfer options were assessed as having negative effect on greenhouse gas emissions (SEA Objective 6) during construction. Option 70.07 has been assessed as having a significant effect, Option 56.01, a moderate effects and Option 59.01, a minor effect. These effects reflect the scale of the options and the amount of embodied carbon associated with materials to be used during construction and where this is identified as a significant amount (>7,500 tonnes CO₂e), a significant negative effect has been assessed.
- 5.5.42 Two (56.01 and 70.07) of the supplementary feasible groundwater options have been assessed as having a significant negative effect on waste and materials (SEA Objective 11) during the construction phase, with Option 59.01 being assessed as having a minor negative effect. Again, this is reflective of the scale of construction required for the options, and the amount of waste that will be produced, as well as materials such as concrete and steel to be utilised during construction. However, a minor positive uncertain

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effect was also assessed against waste and materials (SEA Objective 11) during the construction phase for all options. This reflects the possibility that waste building materials such as steel and plastic, could be re-used or recycled. However, the significance of this is currently unknown.

- 5.5.43 Option 70.07 has been assessed as having a significant negative effect on the historic environment (SEA Objective 12), with the remaining two supplementary feasible groundwater options identified as having a moderate negative effect, during the construction phase. Option 70.07 includes components and new infrastructure that either crosses and/or would be in very close proximity to a number of scheduled monuments, listed buildings, registered parks and gardens as well as conservation areas. Due to the potential for effects on the settings of these heritage assets, this option has been assessed as having a significant negative effect on this objective.
- 5.5.44 No other significant negative effects were assessed against any SEA objectives for the construction phase of the supplementary feasible groundwater options. A range of moderate and minor effects were identified against biodiversity (SEA Objective 1), water quality (SEA Objective 3), flood risk (SEA Objective 4), climate change resilience (SEA Objective 7), human health (SEA Objective 9), and landscape (SEA Objective 13).

Operational Effects

- 5.5.45 Option 70.07 has been assessed as having a significant positive effect on climate change resilience (SEA Objective 7), economic and social well-being (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10) during its operation. This reflects the yield of the option, as the additional water availability provided by the option would help to ensure a continual supply of clean drinking water and increase the resilience of supply, thereby increasing adaptability to the effects of climate change. A continual supply of clean drinking water and increased resilience is likely to also support economic/economic growth and support economic social well-being as well as human health. All other supplementary feasible groundwater options have been assessed as having a moderate positive effect across these four objectives.
- 5.5.46 No other positive effects were identified for the operational phase of the supplementary feasible groundwater options.
- 5.5.47 Options 56.01 and 70.07 have been assessed as having a significant negative effect on greenhouse gas emissions (SEA Objective 6) during their operation as they would involve significant carbon emissions (>2,000 tonnes CO₂e/annum), associated with additional pumping and treatment. Option 59.01 has been assessed as having minor negative effect on this objective.
- 5.5.48 No other significant negative effects were identified for the operational phase of the supplementary feasible groundwater options. A range of moderate and minor effects were identified against biodiversity (SEA Objective 1), water quality (SEA Objective 3), flood risk (SEA Objective 4), waste and materials (SEA Objective 11), historic environment (SEA Objective 12) and landscape (SEA Objective 13).

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Supplementary Supply Options – Effluent Reuse Options

5.5.49 A total of two supplementary feasible effluent reuse options were these are listed in Table 5.29. A summary of the assessment of these options is presented in Table 5.30 with commentary on the likely significant construction and operational effects provided below. Detailed assessments are contained at Appendix E.

Table 5.29 Supplementary Supply Options - Effluent Reuse Options

Option ID	Option Name	Yield	Description
52.02	Poole Water Recycling and Transfer – Stour use 50%	12.5	Option to use highly treated effluent in the Poole area to support flows in the River Stour and enable existing abstraction to continue in the catchment
52.03	Poole Water Recycling and Transfer – Stour use 100%	25	Option to use highly treated effluent in the Poole area to support flows in the River Stour and enable existing abstraction to continue in the catchment

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Table 5.30 Supplementary Supply Options - Effluent Reuse Options Assessment Summary

Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
52.02	Construction (negative)	---/?	--	-/?	--	---	---	-	--	--	0	---	--	--
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	-/?	0	---	-	0	--	0	0	0	0	-	-	-
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0
52.03	Construction (negative)	---/?	--	-/?	--	---	---	-	--	--	0	---	--	--
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	-/?	0	---	-	0	--	0	0	0	0	-	-	-
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0

Construction Effects

- 5.5.50 Both of the supplementary feasible effluent reuse options have been assessed as having a significant positive effect on economic and social well-being (SEA Objective 8) during the construction phase. This reflects the scale of the options and how the requirement for large capital investment (>£15 million) would be likely to generate a number of employment opportunities and supply chain benefits as well as increased spend in the local economy by contractors and construction workers.
- 5.5.51 No other significant positive effects were assessed against any SEA objectives for the construction phase of the supplementary feasible effluent reuse options.
- 5.5.52 Both of the supplementary feasible effluent reuse options have been identified as having a significant negative uncertain effect against biodiversity (SEA Objective 1) during the construction phase. The options cross the Dorset Heathlands SPA and Ramsar, and the Dorset Heaths SAC, as well as the Corfe & Barrow Hills SSSI and Corfe Hills LNR. The option is within 1km of numerous other designated sites, as well as Ancient Woodlands. Construction of the scheme could affect these designated features through direct landtake, noise and disturbance although such effects could be reduced through appropriate mitigation and best practice construction measures. More generally construction of the scheme could affect non-designated habitats and species through direct landtake or disturbance (e.g. noise, vibration, dust). The HRA assessment of option 52.02 and HRA risk assessment of option 52.03 concluded that for option construction, it is likely that there would be opportunities to mitigate or avoid effects at the scheme level (for example, through detailed routing and modifications to pipeline routes and through the application construction best practice/mitigation).
- 5.5.53 Both of the options have also been identified as having a significant negative effect on air quality (SEA Objective 5), during construction. Due to the scale of the investment and construction involved it is expected that there would be impacts on traffic congestion during the construction period, which could have a negative effect on local air quality. Given the scale of development this is considered to be a significant negative effect (>£50m capital expenditure).
- 5.5.54 The effluent reuse options have also been identified as having a significant negative effect on greenhouse gas emissions (SEA Objective 6), during construction. This reflects the scale of the options and the amount of embodied carbon associated with materials, and where this is identified as a significant amount (>7,500 tonnes CO₂e), a significant negative effect has been assessed.
- 5.5.55 Both of the supplementary feasible effluent reuse options have been assessed as having a significant negative effect on waste and materials (SEA Objective 11) during the construction phase. This reflects the scale of construction required for the options, and the amount of waste that will be produced, as well as materials such as concrete and steel to be utilised during construction. However, a minor positive uncertain effect was also assessed against waste and materials (SEA Objective 11) during the construction phase for all options. This reflects the possibility that waste building materials such as steel and plastic, could be re-used or recycled. However, the significance of this is currently unknown.

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- 5.5.56 No other significant negative effects were assessed against any SEA objectives for the construction phase of the supplementary feasible effluent reuse options. A range of moderate and minor effects were identified against soils, geodiversity and land use (SEA Objective 2), water quality (SEA Objective 3), flood risk (SEA Objective 4), climate change resilience (SEA Objective 7), economic and social wellbeing (SEA Objective 8), human health (SEA Objective 9), historic environment (SEA Objective 12), and landscape (SEA Objective 13).

Operational Effects

- 5.5.57 Both of the supplementary feasible effluent reuse options have been assessed as having a significant positive effect on climate change resilience (SEA Objective 7), economic and social well-being (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10) during its operation. This reflects the yield of the options, as the additional water availability provided by the option would help to ensure a continual supply of clean drinking water and increase the resilience of supply, thereby increasing adaptability to the effects of climate change. A continual supply of clean drinking water and increased resilience is likely to also support economic/economic growth and support economic social well-being as well as human health.
- 5.5.58 No other positive effects were identified for the operational phase of the supplementary feasible effluent reuse options.
- 5.5.59 Both of the supplementary feasible effluent reuse options have been assessed as having a significant negative effect on water quality (SEA Objective 3), during the operational phase. The WFD Level 2 assessment concludes that operation of the options would be non-compliant (certainty level – risk), due to the reduction in flows into Poole Harbour and the introduction of a new WTW discharge on the Stour (Lower) Water Body (although it is noted that there would be a reduction in abstraction licence take).
- 5.5.60 No other significant negative effects were assessed against any SEA objectives for the operational phase of the supplementary feasible effluent reuse options. A range of moderate and minor effects were identified against biodiversity (SEA Objective 1), flood risk (SEA Objective 4), greenhouse gas emissions (SEA Objective 6), waste and materials (SEA Objective 11), historic environment (SEA Objective 12), and landscape (SEA Objective 13).

Revised Demand Management Options

- 5.5.61 For the Revised Draft WRMP24, the previous feasible list of demand management and leakage options was further developed into seven holistic demand management option portfolios. This process was driven by a new statutory demand reduction target being confirmed, an increase in the supply deficit forecast from 2035 and government steer to consider more ambitious smart metering options. Elements of the original feasible list were taken forwards with some adjustments to align with the new drivers.
- 5.5.62 Each portfolio comprises different combinations of leakage, smart metering and water efficiency options, achieving a range of demand management performance and alignment with targets. These seven portfolio options are listed in Table 5.31. A summary of the

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assessment of these options is presented in Table 5.32 with commentary on the likely significant construction and operational effects provided below. Detailed assessments are contained at Appendix E.

Table 5.31 Supplementary Demand Management Options

Option ID	Option Name	Yield*	Description
57.01	Demand Strategy 1	89	This option will involve: <ul style="list-style-type: none"> • Full smart metering by 2030 • Household water efficiency checks to be at the largest feasible scale by 2030 • Non-household water efficiency checks to be at the largest feasible scale by 2030 • Leakage profile will be linear to 2050 (~1 MI/d).
57.02	Demand Strategy 2	59	This option will involve: <ul style="list-style-type: none"> • Full smart roll out by 2037/38 • Household water efficiency checks to be at 2/3 largest feasible scale by 2037/38 • Non-household water efficiency checks to be at 2/3 largest feasible scale by 2037/38 • Leakage profile will be slow to 2050.
57.03	Demand Strategy 3	53	This option will involve: <ul style="list-style-type: none"> • Full smart roll out by 2050 • Household water efficiency checks to be at 1/3 largest feasible scale by 2050 • Non-household water efficiency checks to be at 1/3 largest feasible scale by 2050 • Leakage profile will be slow to 2050.
57.04	Demand Strategy 4	62	This option will involve: <ul style="list-style-type: none"> • Full smart metering by 2030 • Household water efficiency checks to be at the largest feasible scale by 2030 • Non-household water efficiency checks to be at the largest feasible scale by 2030 • Leakage profile will be linear to 2050.
57.05	Demand Strategy 5	89	This option will involve: <ul style="list-style-type: none"> • Full smart metering by 2030 • Household water efficiency checks to be at the largest feasible scale by 2030 • Non-household water efficiency checks to be at the largest feasible scale by 2030 • Leakage profile will be linear to 2050.
57.06	Demand Strategy 6	43	This option will involve: <ul style="list-style-type: none"> • 50% smart metering by 2030 • Household water efficiency checks to be 1/6 largest feasible scale by 2050 • Non-household water efficiency checks to be 1/6 largest feasible scale by 2050 • Leakage profile will be slow to 2050.
57.07	Demand Strategy 7	89	This option will involve: <ul style="list-style-type: none"> • Full urban smart AMI by 2030, rural also by 2035 • Household water efficiency checks to be at the largest feasible scale by 2030 • Non-household water efficiency checks to be at the largest feasible scale by 2030 • Leakage profile will be linear to 2050 (~1 MI/d).

* Please note that the yield values have been further refined by Wessex Water.

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Table 5.32 Supplementary Demand Management Options Assessment Summary

Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
57.01	Construction (negative)	0	0	0	-/?	--/?	---	-/?	-/?	-/?	0	---	0	0
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	-	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	++	+++	+++	+++	+++	0	0	0
57.02	Construction (negative)	0	0	0	-/?	--/?	---	-/?	-/?	-/?	0	---	0	0
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	-	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	+++	+++	+++	+++	+++	0	0	0
57.03	Construction (negative)	0	0	0	-/?	--/?	---	-/?	-/?	-/?	0	---	0	0
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	-	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	+++	+++	+++	+++	+++	0	0	0
57.04	Construction (negative)	0	0	0	-/?	--/?	---	-/?	-/?	-/?	0	---	0	0
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
	Operation (negative)	0	0	0	0	-	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	+++	+++	+++	+++	+++	0	0	0
57.05	Construction (negative)	0	0	0	-/?	--/?	---	-/?	-/?	-/?	0	---	0	0
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	-	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	+	+++	+++	+++	+++	0	0	0
57.06	Construction (negative)	0	0	0	-/?	--/?	---	-/?	-/?	-/?	0	---	0	0
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	-	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	+++	+++	+++	+++	+++	0	0	0
57.07	Construction (negative)	0	0	0	-/?	--/?	---	-/?	-/?	-/?	0	---	0	0
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	-	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	+	+++	+++	+++	+++	0	0	0

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Construction Effects

- 5.5.63 All seven of the revised feasible demand management options (Options 57.01 – 57.07) assessed would require a large capital investment that would be likely to generate employment opportunities and supply chain benefits as well as increased spend in the local economy by contractors and construction workers. Where this is the case, the options were assessed as having a significant positive effect on economic and social well-being (SEA Objective 8) during the construction phase.
- 5.5.64 No other significant positive effects were assessed against any SEA objectives for the construction phase of the feasible demand management options.
- 5.5.65 All seven of the revised feasible demand management options were assessed as having a significant negative effect on greenhouse gas emissions (SEA Objective 6) and waste and materials (SEA Objective 11). This reflects the scale of the options and the amount of embodied carbon associated with materials (>7,500 tonnes CO₂e) as well as the actual waste materials produced during construction. All seven of the options were assessed as also having a minor positive uncertain effect on waste and materials (SEA Objective 11) during the construction phase, as there is a possibility that waste building materials such as steel and plastic, could potentially be re-used or recycled. However, the significance of this is currently unknown.
- 5.5.66 No further significant effects were identified against the SEA objectives for the demand management options.
- 5.5.67 Minor and moderate uncertain negative effects were assessed against flood risk (SEA Objective 4), air quality (SEA Objective 5), climate change resilience (SEA Objective 7), economic and social well-being (SEA Objective 8), and human health (SEA Objective 9), for all seven of the feasible demand management options.

Operational Effects

- 5.5.68 All the revised feasible demand management options were assessed as having a significant positive effect on climate change resilience (SEA Objective 7), economic and social well-being (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10). The additional water availability provided by the options would help to ensure a continual supply of clean drinking water and increase the resilience of supply, thereby increasing adaptability to the effects of climate change. A continual supply of clean drinking water and increased resilience is likely to also support economic/economic growth and support economic social well-being as well as human health.
- 5.5.69 Options 57.02, 57.03, 57.04 and 57.06 have been assessed as having a significant positive effect against greenhouse gas emissions (SEA Objective 6) during operation. This reflects the carbon reductions arising from the reduction in operational energy associated with network efficiencies. Option 57.01 has been assessed as having a moderate positive effect on this objective.
- 5.5.70 No other significant positive effects were identified in the assessment of the feasible demand management options for the Wessex Water WRMP24 for the operational phase.

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Options 57.02, 57.03 and 57.06 were assessed as having a minor positive effect on greenhouse gas emissions (SEA Objective 6).

5.5.71 No other significant negative effects were identified in the assessment of the revised feasible demand management options for the operational phase. All seven of the revised feasible demand management options have been assessed as having a minor negative impact on air quality (SEA Objective 5).

5.6 Revised Feasible Option List

5.6.1 Table 5.33 presents a complete list of all the feasible options considered by Wessex Water when identifying suitable options for selection in the Revised Draft WRMP24. It combines those feasible options identified at Draft WRMP24 stage with those supplementary and revised options identified following consultation on the Draft WRMP24. The final column anticipates the outcome of the option appraisal process to define the revised preferred options. In total, for the Revised Draft WRMP24, Wessex Water has considered 86 feasible options, comprising 77 'supply side' (resource management) options and 9 'demand-side' (customer, distribution and production) options.

Table 5.33 Revised Feasible Options

Option ID	Option name	Option type	Option status
9.16	Temporary use bans	Tariff	Preferred
9.19	Reduced levels of service, moving to 1:500 to 1:200	Tariff	Preferred
18.01	Somerset Spine main upgrade	Transfer - Internal potable	Feasible
18.02	CALM main upgrade and reversal	Transfer - Internal potable	Feasible
18.09	Chippenham to Devizes transfer upgrade	Transfer - Internal potable	Feasible
18.1	West Somerset Reservoirs transfer upgrade	Transfer - Internal potable	Feasible
18.26	Bristol import increase towards Trowbridge	Transfer - External potable bulk supply	Feasible
18.27	Pewsey resilience	Transfer - Internal potable	Feasible
18.28	North Bath Resilience	Transfer - Internal potable	Feasible
19.03	SWW Reservoir Pump Storage - Tiverton to Taunton Transfer	Transfer - External raw water bulk supply	Feasible
19.06	Severn-Thames Transfer: WCWRG only at 15MI/d	Transfer - External raw water bulk supply	Feasible

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Option ID	Option name	Option type	Option status
19.07	Severn-Thames Transfer: WCWRG only at 30MI/d	Transfer - External raw water bulk supply	Feasible
19.1	Severn-Thames Transfer: multiple receivers at 15MI/d	Transfer - External raw water bulk supply	Feasible
19.11	Severn-Thames Transfer: multiple receivers at 30MI/d	Transfer - External raw water bulk supply	Feasible
21.06	Yeovil transfer to Dorchester	Transfer - Internal potable	Feasible
21.1	Bristol import increase towards Chippenham	Transfer - External potable bulk supply	Feasible
21.11	Devizes resilience: Calne to Devizes new transfer	Transfer - Internal potable	Feasible
21.12	Pewsey resilience	Transfer - Internal potable	Feasible
21.13	Salisbury to Amesbury to Tidworth Transfer	Transfer - Internal potable	Feasible
21.14	Amesbury to Tidworth transfer	Transfer - Internal potable	Feasible
22.04	Weymouth Source Improvements	WTW Expansion	Preferred
23.01	Yeovil Reservoir peak capacity	WTW Expansion	Feasible
25.01	Mendips to Stour	Reservoir	Feasible
25.03	Grid reinforcements - Wylfe valley	Reservoir	Feasible
25.04	South Grid Resilience	Reservoir	Feasible
25.05	North Grid to South Grid reinforcements	Reservoir	Feasible
26.17	Reinstatement of mothballed sources - Winterbourne Abbas	Groundwater	Feasible
27.04	Under-utilised licence - Wimborne Minster	Groundwater	Feasible
30.02	Pump Storage – Quantock Reservoir	New/Enhanced pumping station	Feasible
31.02	Raising Dams – Yeovil Reservoir	Reservoir	Feasible
32.03	New Reservoirs – Yeovil	Reservoir	Feasible
32.13	New Reservoir – Dorset Frome	Reservoir	Feasible

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Option ID	Option name	Option type	Option status
32.24	New Reservoir - Parrett	Reservoir	Feasible
32.36	New Reservoir – Bristol Avon	Reservoir	Feasible
33.01	Groundwater: Aquifer Storage Recharge - Wareham Basin	Groundwater	Feasible
34.08	Groundwater - Hampshire Avon I	Groundwater	Feasible
34.09	Groundwater - Hampshire Avon II	Groundwater	Feasible
34.1	Amesbury boreholes	Groundwater	Feasible
34.11	West Salisbury Boreholes	Groundwater	Feasible
36.02	Desalination: North Coast Bristol Water - Avonmouth	Desalination	Feasible
37.05	Effluent re-use – Bridgwater Reservoir	Effluent reuse	Feasible
37.06	Effluent Re-use - Quantock Reservoir	Effluent reuse	Feasible
37.07	Effluent reuse - North Somerset Non Household	Effluent reuse	Feasible
37.1	Effluent Re-use Taunton Canal	Effluent reuse	Feasible
38.01	Underutilised licence due to water quality: Purbeck	Groundwater	Feasible
38.04	Under-utilised licence - Mid Dorset	Groundwater	Feasible
38.06	Under-utilised licence - mid Stour II	Groundwater	Feasible
38.11	Under-utilised licence - East Dorchester Source	Groundwater	Feasible
38.12	Under-utilised licence - North East Bath	Groundwater	Feasible
39.01	Under-utilised licence - East Weymouth Source	Groundwater	Preferred
39.02	Under-utilised Licence - North Warminster	Groundwater	Preferred
41.01	Drought Permit - Stour catchment	Drought options	Preferred
41.06	Drought Permit - Bride catchment	Drought options	Preferred

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Option ID	Option name	Option type	Option status
52.02	Poole Water Recycling and Transfer – Stour use 50%	Effluent reuse	Feasible
52.03	Poole Water Recycling and Transfer – Stour use 100%	Effluent reuse	Feasible
54.01	Mendips to Grid	Reservoir	Feasible
54.03	Mendips to Trowbridge	Reservoir	Feasible
54.04	Mendips to Grid and Trowbridge	Reservoir	Feasible
54.05	Mendips to Stour - 50% capacity	Reservoir	Feasible
54.06	Mendips to Grid - 50% capacity	Reservoir	Feasible
54.07	Mendips to Trowbridge - 50% capacity	Reservoir	Feasible
54.08	Mendips to Grid and Trowbridge - 50% capacity	Reservoir	Feasible
55.01	CALM main upgrade and reversal - 10MI/d	Transfer - Internal potable	Feasible
55.03	South Grid Resilience - 8MI/d	Transfer - Internal potable	Feasible
55.05	North Grid to South Grid reinforcements - 5.5MI/d	Transfer - Internal potable	Feasible
55.09	Trowbridge to Devizes	Transfer - Internal potable	Feasible
55.1	Trowbridge to Market Lavington	Transfer - Internal potable	Feasible
55.11	Trowbridge to North Warminster	Transfer - Internal potable	Feasible
55.12	Yeovil to Dorchester - 7MI/d	Transfer - Internal potable	Feasible
56.01	Salisbury Boreholes - 7MI/d	Groundwater enhancement	Feasible
57.01	Demand Strategy 1	Active leakage management	Feasible
57.02	Demand Strategy 2	Active leakage management	Feasible
57.03	Demand Strategy 3	Active leakage management	Feasible
57.04	Demand Strategy 4	Active leakage management	Feasible
57.05	Demand Strategy 5	Active leakage management	Feasible
57.06	Demand Strategy 6	Active leakage management	Feasible
57.07	Demand Strategy 7	Active leakage management	Preferred

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Option ID	Option name	Option type	Option status
58.01	Bristol Bulk Import - 15MI/d	Transfer - External potable bulk supply	Feasible
59.01	Stream Support at Mere	Groundwater	Preferred
70.01	Bristol Import and onwards transfer I	Transfer - External potable bulk supply	Preferred
70.02	Bristol Import and onwards transfer II	Transfer - External potable bulk supply	Feasible
70.03	Bristol Import and onwards transfer III	Transfer - External potable bulk supply	Feasible
70.04	Bristol Import and onwards transfer IV	Transfer - External potable bulk supply	Feasible
70.05	Bristol Import and onwards transfer V	Transfer - External potable bulk supply	Feasible
70.06	Increased Reservoir Capacity and East Transfer	WTW Expansion	Preferred
70.07	Hampshire Avon Boreholes and Transfer	Groundwater	Feasible

5.7 Using the Findings of the Feasible Options Assessment to Inform Decision Making

- 5.7.1 The SEA findings for the feasible options have been used as inputs into the following key decision points within the option appraisal process:
- Multi-Criteria Analysis (MCA), undertaken in advance of the selection of options;
 - scenario testing of the constrained options; and
 - selection of the preferred programme of options.
- 5.7.2 Further detail on the option appraisal process is contained in the separate technical annex “WRMP24 Options Appraisal: Main report and Annexes” (August 2023) completed to accompany the Revised Draft WRMP24.
- 5.7.3 Annex D: Rejection Register of the WRMP24 Options Appraisal identifies all the feasible options not taken forward along with the justification. Reasons include uncertainties associated with yield or promotability, feasibility and environmental impacts. Under environmental impacts reference is given to designated sites and features, including SACs, cSAC, SPAs, SSSI, National Park and AONBs. To avoid unnecessary duplication, this information is not repeated in this Environmental Report.

MCA

- 5.7.4 With respect to the MCA (the best value optimisation tool), and the input of the SEA findings, a distinction was made between those:

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- non-location effects – so effects arising from the type of option/infrastructure required and benefits provided e.g., embodied and operational greenhouse gas emissions, economic and social well-being (in part of function of capex spend), water resources (yield) and waste and resources used.
- locational effects – constraints affecting the option arising from where the option is proposed and its proximity to sensitive receptors e.g. a designated habitat (biodiversity), a World Heritage Site (Cultural Heritage) or National Park (landscape).

5.7.5 Mitigation to resolve non-location effects (where required) tends to reflect corporate positions e.g. uptake of EV within the vehicle fleet, or when all energy will be renewable/zero carbon and so for the purposes of decision making is less likely to be considered a differentiator. However, mitigation to resolve location effects tend to be bespoke, and can in some cases be difficult to resolve without additional time and resources and poses risks to implementation, which then can challenge the viability of selected options. Within the context then of decision making, it can then be considered as being useful to discriminate between options, as it then highlights those where environmental constraints/risks are greatest.

5.7.6 The following locational effects were considered as being key:

- For construction effects – where the SEA has identified likely significant negative effects for one or more of 1. Biodiversity, 4. Flood risk, 12. Historic Environment and 13. Landscape.
- For operational effects – where the SEA has identified likely significant negative effects for one or more of 1. Biodiversity and 3. Water quality.

5.7.7 Typically, many of the construction effects arising from constraints can be avoided or mitigated through further design changes (such as changes to location of a point of abstraction, or relocating a pipeline route); however, from an operational perspective, if the proposed option has a likely significant effect (LSE) on a European conservation site (an HRA risk), or is considered WFD non-compliant, it is challenging for the option to proceed without further work (such as additional investigations, modelling and consideration of alternatives) and/or fundamental design changes e.g. potentially a reduction in yield.

5.7.8 Whilst it would then be possible to use the outputs to focus on operational effects, it would limit WWSL's consideration of environmental risks to outputs related to the HRA and WFD, rather than other aspects of an option. In consequence, both stages (construction and operation) have been considered to provide WWSL with a rounded appreciation of environmental risks associated with the feasible options.

5.7.9 Where construction and operational negative effects have been identified for the specific SEA objectives, these effects have been converted into a value scale (0 – 6 for each SEA Objective), then added together with a combined value scale for construction of 0 – 24 and for operation of 0 – 12, with the lower the value, the higher the risk associated with the option.

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Figure 5.1 Example SEA values inputs into MCA

Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	Greenhouse Gas Emissions	Climate Change Resilience	Economic and Social	3. Human Health	18. Water Resources	19. Waste and Material	12. Biodiversity and Land Use	13. Landscape	Construction (0-24)	Operation (0-12)
49.85	Construction	6	6	6	5	5	0	5	5	5	6	0	6	6		
	Operation	6	6	6	6	6	6	6	12	6	6	7	6	6		
	Construction	6	6	6	6	6	6	6	6	6	6	6	6	6		
	Operation	6	6	6	6	6	10	12	12	12	12	6	6	6		
	Construction	6	6	6	5	3	0	5	5	5	6	0	6	6	23	12
49.86	Construction	6	6	6	6	6	6	6	12	6	6	7	6	6		
	Operation	6	6	6	6	6	6	6	6	6	6	6	6	6		
	Construction	6	6	6	6	6	6	6	6	6	6	6	6	6		
	Operation	6	6	6	6	6	10	12	12	12	12	6	6	6		
	Construction	4	4	6	2	4	4	4	4	6	6	4	2	2	10	8
38.82	Construction	6	6	6	6	6	6	6	8	6	6	7	6	6		
	Operation	3	6	5	6	6	4	6	2	2	2	4	4	4		
	Construction	6	6	6	6	6	6	6	10	10	10	6	6	6		
	Operation	6	6	6	6	6	6	6	6	6	8	6	6	6		
	Construction	4	4	6	6	4	4	6	4	4	6	4	4	0	14	12
21.85	Construction	6	6	6	6	6	6	6	8	6	6	7	6	6		
	Operation	6	6	6	6	6	6	6	6	6	6	6	6	4		
	Construction	6	6	6	6	6	6	6	6	6	8	6	6	6		
	Operation	6	6	6	6	6	6	6	6	6	8	6	6	6		
	Construction	0	2	6	2	1	2	4	2	2	6	0	0	0	2	12
24.9	Construction	6	6	6	6	6	6	8	12	6	6	7	6	6		
	Operation	6	6	6	6	6	6	6	6	6	6	6	0	2		
	Construction	6	6	6	7	6	6	8	8	8	8	6	6	6		
	Operation	6	6	6	6	6	6	6	6	6	6	6	4	2		
	Construction	0	2	6	2	0	0	4	2	2	6	0	0	0	2	12
22.83	Construction	6	6	6	6	6	6	6	12	6	6	7	6	6		
	Operation	6	6	6	6	6	2	6	6	6	6	6	4	2		
	Construction	6	6	6	6	6	6	6	8	8	8	6	6	6		
	Operation	6	6	6	6	6	6	6	8	8	8	6	6	6		
	Construction	6	6	6	6	6	6	6	6	6	6	6	6	6		

5.7.10 Broadly, proposed options that seek to minimise demand, increase efficiencies and decrease leakages are less intrusive and have fewer adverse environmental effects; however, are not of sufficient scale to meet future water resource demands, taking into account future challenges. Supply-side options that seek to maximise existing operational efficiencies tend also to be associated with few or minor adverse effects, although consequences from any reduced flows in rivers and water bodies need also to be considered. As the scale of infrastructure requirements increases, there are consequential increases in the magnitude and significance of positive and negative effects. As reflected in the MCA process, these has then led to the preferential selection of demand management, leakage and efficiency options with a limited number of supply side options as those representing best value options.

Scenario Testing

5.7.11 The MCA was run under different scenarios to test the selection of best value options, and confirm sensitivities and dependencies within the decision-making model. As a consequence, common options were identified across different scenarios to ensure resilience to the best value plan selection.

Draft and Revised Draft WRMP24 Preferred Options

5.7.12 For those options taken forward for the inclusion in the Draft WRMP24, further work was undertaken in discussion with Wessex Water's engineering teams, highlighting further opportunities for scheme refinement, taking into account potential mitigation measures

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identified at the revised feasible option stage. For those options, the principal changes relate to yield values arising from adjusted phasing of option implementation.

- 5.7.13 The Draft WRMP24 included 16 supply options to maintain and enhance operational resilience. It also included three demand management and metering options and one leakage option. These were to address a forecast deficit that was estimated to be 93 MI/d by 2079/80.
- 5.7.14 As a consequence of further regulatory planning requirements, notably changes to licence reductions in 2035 and leakage and efficiency targets, Wessex Water revised the deficit forecast for the Revised Draft WRMP24 to over 130 MI/d by 2079/80 under the dry year critical period scenario.
- 5.7.15 A further 29 supplementary feasible supply options and seven revised demand management options were considered, as part of the development of the Revised Draft WRMP24. Following revision and consolidation of the feasible options, Wessex Water considered a total of 86 feasible options when selecting its revised preferred options for the Revised Draft WRMP24. These comprised 77 'supply side' (resource management) options and 9 'demand-side' (customer, distribution and production) options.
- 5.7.16 Following the application of the decision-making tools and testing to the 86 feasible options, for the Revised Draft WRMP24 Wessex Water selected a total of 11 revised preferred options comprising of eight supply options, and three demand side options (one demand management portfolio option and two tariff options) for its best value plan. Of the total, seven were previously included in the Draft WRMP24, and as previously outlined, the revised demand management option, is a portfolio option combining efficiency, leakage and metering measures, building on those individual options previously considered.
- 5.7.17 The revised preferred have then been taken forward and subject to further assessment (individually and cumulatively) to ensure that the environmental effects of Wessex Water's Revised Draft WRMP24 has been identified, described and evaluated.

6. Assessment of the Revised Draft WRMP24

6.1 Introduction

6.1.1 This section describes the findings of the assessment of the Revised Draft WRMP24. In particular, it presents:

- Section 6.2: Revised Draft WRMP24 Preferred Option Assessment to identify, describe and evaluate the effects of the preferred options (11 revised preferred options comprising of eight supply options, and three demand side options (one demand management portfolio option and two tariff options).
- Section 6.3: Preferred Programme Assessment to identify the likely significant effects of the preferred programme of options (considering the effects of all preferred options as a whole).
- Section 6.4: Reasonable Alternative Plan Assessment to identify, describe and evaluate the effects of the reasonable alternative plan identified by Wessex Water.
- Section 6.5: Secondary, Cumulative and Synergistic Effects Assessment to identify, describe and evaluate the cumulative effects assessment of the preferred programme taking into account other relevant plans.
- Section 6.6: Mitigation and Enhancement.
- Section 6.7: Conclusions.

6.2 Revised Draft WRMP24 Preferred Option Assessment

Overview of Preferred Options - Supply

6.2.1 Following the detailed screening and selection of best value options by the MCA decision-making process (Section 5.7), a total of eight supply options have been identified by Wessex Water as revised preferred options. The options are summarised in Table 6.1.

Table 6.1 Preferred Supply Options included in the Revised Draft WRMP24

Option ID	Option	Yield (Ml/d)	Date	Description
22.04	Weymouth Source Improvements	2.5	2054	Network reconfiguration and treatment works improvement in the Weymouth area to increase yield from a local source.
39.01	Under-utilised licence - North Bath Source	5	2056	Increase utilisation of a small reservoir North of Bath to help meet peak demands through a new pre-treatment works, and use of existing infrastructure for ongoing treatment and distribution.

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Option ID	Option	Yield (Ml/d)	Date	Description
39.02	Under-utilised Licence - North Warminster	2.5	2028	The option involved drilling two new boreholes at an existing site north of Warminster to improve the yield of the source
41.01	Drought Permit - Stour catchment	2.08	2025	Increase annual licence abstraction from Stour sites at Black Lane, Corfe Mullen and Sturminster Marshall in the winter, as well as Empool.
41.06	Drought Permit - Bride catchment	1.1	2025	Increase peak output from a source in the Bride catchment during drought conditions
59.01	Stream Support at Mere	5	2025	Option to provide stream support to an upper Dorset Stour tributary to allow current abstraction in the catchment to continue
70.01	Bristol Import and onwards transfer I	4	2026	This option is a combination of the following schemes: 18_26 and 18_09
70.06	Increased Reservoir Capacity and East Transfer	4	2026	This option is a combination of the following schemes: 23_01 and 18_02.

Summary of Effects

6.2.2 Table 6.2 presents the summary of the construction and operational effects of the preferred supply options. The likely significant effects are then detailed in the remainder of the subsection.

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Table 6.2 Summary of Preferred Supply Option Assessments

Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
22.04	Construction (negative)	-/?	0	0	0	--	-	0	-	0	0	--	-	-
	Construction (positive)	0	0	0	0	0	0	0	++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	0	-	0	0	0	0	-	0	0
	Operation (positive)	0	0	0	0	0	0	+	+	+	+	0	0	0
39.01	Construction (negative)	-	0	--/?	0	--	-	0	--	-	0	--	-	--
	Construction (positive)	0	+	0	0	0	0	0	++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	-/?	0	0	0	0	0	-/?	-	-
	Operation (positive)	+	0	0	0	0	0	++	++	++	++	0	0	0
39.02	Construction (negative)	-	0	0	--	-	-	-	-	-	0	-	0	-
	Construction (positive)	0	0	0	0	0	0	0	+	0	0	+/?	0	0
	Operation (negative)	0	0	-/?	--	0	-	0	0	0	0	-/?	0	0
	Operation (positive)	+	0	0	0	0	0	+	+	+	+	0	0	0

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
41.01	Construction (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Construction (positive)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (negative)	0	0	0	0	0	0	0	0	0	0	-/?	0	0
	Operation (positive)	0	0	0	0	0	+/?	+	+	+	+	0	0	0
41.06	Construction (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Construction (positive)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (negative)	-	0	0	0	0	0	0	0	0	0	-/?	0	0
	Operation (positive)	0	0	0	0	0	+/?	+	+	+	+	0	0	0
59.01	Construction (negative)	-	-	-/?	--	-	-/?	-	-	-	0	-	--	--
	Construction (positive)	0	+	0	0	0	0	0	+	0	0	+/?	0	0
	Operation (negative)	0	0	0	-/?	0	-	0	0	0	0	-/?	-	-
	Operation (positive)	0	0	0	0	0	0	++	++	++	++	0	0	0
70.01	Construction (negative)	---/?	-	-/?	--	---/?	--	-	-	-	0	---	---	---

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	0	-	0	0	0	0	-/?	-	-
	Operation (positive)	++	0	0	0	0	0	++	++	++	++	0	0	0
70.06	Construction (negative)	---/?	-/?	-/?	--	---	---	-	-	-	0	---	---	---
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	-/?	0	0	--	-	--	0	0	0	0	-/?	-	-
	Operation (positive)	+	0	0	0	0	0	+	+	+	+	0	0	0

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22.04 Weymouth Source Improvements

Construction

6.2.3 No significant positive or negative effects were identified for the construction phase of option 22.04.

Operation

6.2.4 No significant positive or negative effects were identified for the operational phase of option 22.04.

39.01 Under-utilised licence - East Weymouth Source

Construction

6.2.5 No significant positive or negative effects were identified for the operational phase of option 39.01.

Operation

6.2.6 No significant positive or negative effects were identified for the operational phase of option 39.01.

39.02 Under-utilised Licence - North Warminster

Construction

6.2.7 No significant positive or negative effects were identified for the construction phase of option 39.02.

Operation

6.2.8 No significant positive or negative effects were identified for the operational phase of option 39.02.

41.01 Drought Permit - Stour catchment

Construction

6.2.9 Option 41.01 would not require any construction or implementation activities and hence neutral effects were identified against all objects in the assessment of the construction phase of this option.

Operation

6.2.10 No significant positive or negative effects were identified for the operational phase of option 41.01.

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41.06 Drought Permit – Bride catchment

Construction

6.2.11 Option 41.06 would not require any construction or implementation activities and hence neutral effects were identified against all objects in the assessment of the construction phase of this option.

Operation

6.2.12 No significant positive or negative effects were identified for the operational phase of option 41.06.

59.01 Stream Support at Mere

Construction

6.2.13 No significant positive or negative effects were identified for the construction phase of option 59.01.

Operation

6.2.14 No significant positive or negative effects were identified for the operational phase of option 59.01.

70.01 Bristol Import and onwards transfer I

Construction

- 6.2.15 Construction of option 70.01 would require a large capital investment (>£15 million) that would be likely to generate a number of employment opportunities and supply chain benefits, in addition to increased spend in the local economy by contractors and construction workers. As such the option has been assessed as having a significant positive effect on economic and social well-being (SEA Objective 8).
- 6.2.16 No other significant positive effects were identified in the assessment of the construction phase of option 70.01.
- 6.2.17 Construction of option 70.01 was assessed as having a significant negative uncertain effect on biodiversity (SEA Objective 1) during construction. This reflects that that pipeline route as currently proposed would lead to direct effects on the Spye Park and Roundway Down and Covert SSSI's. However, Wessex Water has agreed that further works will be undertaken on the option to avoid and mitigate effects at the scheme level which will include detailed routing that avoids effects, preferentially follows existing roads or other appropriate linear infrastructure and through the application construction best practice/mitigation.
- 6.2.18 Construction activity would generate emissions to air associated with the use of plant and machinery as well as vehicle movements. Option 70.01 has been assessed as having a significant negative uncertain effect on air quality (SEA Objective 5), reflecting the scale of construction works and associated number of vehicle movements and likelihood of increased road traffic congestion in the area.

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- 6.2.19 Option 70.01 has been assessed as having a significant negative effect on waste and materials (SEA Objective 11), reflecting the scale of construction works and associated material requirements (e.g. concrete, steel and plastics) and anticipated generation of construction waste. However, the option was also assessed as having a minor positive uncertain effect on SEA Objective 11 during the construction, as there is a possibility that waste building materials such as steel and plastic, could potentially be re-used or recycled, however, the significance of this effect is currently unknown.
- 6.2.20 The construction of option 70.01 was assessed as having a significant negative effect on the historic environment (SEA Objective 12). This reflects that the option would involve works crossing a Scheduled Monument (Roman road in Spye Park), two Listed Buildings (16 Bratton Road and 77, Saint Edith's March), a Registered Battlefield (the Battle of Roundway Down 1643), a Registered Park and Garden (Spye Park) and a Conservation Area (Sandy Lane Conservation Area) and would be situated within 1km of a number of other heritage assets (including the City of Bath WHS). Due to the potential for effects on the settings of these heritage assets, and where works intersect with assets directly, the potential for direct loss or harm, the option has been assessed as having a significant negative effect on this objective. However, it is noted that the pipeline route for the Bowden to Devizes transfer follows the route of a pre-existing pipeline, and that for the Bristol import follows an existing road, and hence, where assets are crossed, works will take place on previously disturbed ground, which may provide some mitigation.
- 6.2.21 Option 70.01 has also been assessed as having a significant negative effect on landscape (SEA Objective 13), as the construction works associated with the option would be partially located within the North Wessex Downs AONB and would be within 1.4km of the Cotswolds AONB. As such, construction of the option could introduce above ground infrastructure into the designated landscapes and could affect the visual amenity of the designated features.
- 6.2.22 No further significant negative effects were identified in the assessment of the construction phase of option 70.01.

Operation

- 6.2.23 No significant positive or negative effects were identified for the operational phase of option 70.01

70.06 Increased Reservoir Capacity and East Transfer**Construction Effects**

- 6.2.24 Construction of the WTW expansion option (option 70.06) would require a large capital investment (>£15 million) that would be likely to generate a number of employment opportunities and supply chain benefits, in addition to increased spend in the local economy by contractors and construction workers. As such the option has been assessed as having a significant positive effect on economic and social well-being (SEA Objective 8).
- 6.2.25 No other significant positive effects were identified in the assessment of option 70.06, however, minor positive or minor positive uncertain effects were identified against SEA objectives 2 (soils, geodiversity and land use) and 11 (waste and materials).

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- 6.2.26 Option 70.06 has been assessed as having a significant negative uncertain effect on biodiversity (SEA Objective 1) during the construction phase. This reflects that the option, at present, would require works crossing the Whitesheet Hill SSSI and two areas of Ancient Woodland which could result in the loss of/disturbance to habitats and species at these sites. The HRA of the option concludes that during construction, whilst effects are possible (as pathways present), significant or significant adverse effects clearly avoidable with established scheme-level avoidance or mitigation measures and further work would be required on the option design and pipeline route to ensure that the other designated sites are also avoided. There would also be potential for works to lead to noise/vibration and dust deposition effects on other designated and non-designated sites in proximity to the works, in addition to effects resulting from direct land take on non-designated greenfield land.
- 6.2.27 Construction activity would generate emissions to air associated with the use of plant and machinery as well as vehicle movements. Option 70.06 has been assessed as having a significant negative effect on air quality (SEA Objective 5), reflecting the scale of construction works and associated number of vehicle movements and likelihood of increased road traffic congestion in the area.
- 6.2.28 The construction of option 70.06 has been assessed as having a significant negative effect on greenhouse gas emissions (SEA Objective 6). This is due to the scale of the embodied carbon in construction materials and the requirement for vehicle movements to transport materials and equipment to site, in addition to the operation of plant and machinery associated with the construction phase (which would total more than 7,500 tonnes CO₂e).
- 6.2.29 Option 70.06 has also been assessed as having a significant negative effect on waste and materials (SEA Objective 11), reflecting the scale of construction works and associated material requirements (e.g. concrete, steel and plastics) and anticipated generation of construction waste. However, the option was also assessed as having a minor positive uncertain effect on SEA Objective 11 during the construction, as there is a possibility that waste building materials such as steel and plastic, could potentially be re-used or recycled, however, the significance of this effect is currently unknown.
- 6.2.30 Option 70.06 has been assessed as having a significant negative effect on the historic environment (SEA Objective 12) during the construction phase. This is due to the construction works being situated within 1km of a large number of designated heritage assets including: 25 Scheduled Ancient Monuments, seven of which the works would intersect (Pen Pits quern quarries SE of Hart Hill; White Sheet Hill ditch; Neolithic causewayed camp, White Sheet Downs; Barrow 270m north east of White Sheet camp; White Sheet camp; Later Iron Age enclosure, Ilchester Mead; and Bowl barrow 1050m north east of Wood Farm); over 400 Listed Buildings, including Donne Lane Head, which the works would cross, and a further 24 within 0.1km; five Registered Parks and Gardens (including Montacute House, which the works would cross); and 12 Conservation Areas and potential for direct harm or loss of such assets where works intersect with assets directly in addition to potential effects on the setting of assets.
- 6.2.31 Option 70.06 has also been assessed as having a significant negative effect on landscape (SEA Objective 13), as the construction works associated with the option would be partially located within the Cranborne Chase & West Wiltshire Downs AONB and would be within

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1.5km of the Dorset AONB. As such, construction of the option could introduce above ground infrastructure into the designated landscapes and could affect the visual amenity of the designated features.

6.2.32 No further significant negative effects were identified in the assessment of the construction phase of option 70.06. However, a range of minor negative, minor negative uncertain and moderate negative effects were identified against SEA Objectives 2 (soils geodiversity and land use), 3 (water quality), 4 (flood risk), 7 (climate change resilience) and 9 (human health).

Operational Effects

6.2.33 No significant negative or positive effects were identified during the assessment of option 70.06. However, minor positive effects were identified against SEA Objectives 1 (biodiversity), 7 (climate change resilience), 8 (economic and social well-being), 9 (human health), and 10 (water resources), whilst a range of minor negative, minor negative uncertain and moderate negative effects were identified against SEA Objectives 1 (biodiversity), 4 (flood risk), 5 (air quality), 6 (greenhouse gas emissions), 11 (waste and material), 12 (historic environment) and 13 (landscape).

Overview of Preferred Options – Demand Management

6.2.34 In addition, there have been three demand management and metering options identified and included as preferred options. These are presented summarised in Table 6.3.

Table 6.3 Preferred Demand Management included in the Revised Draft WRMP24

Option ID	Option	Yield (MI/d)	Date	Description
9.16	Temporary Use Bans	22.93	2025	Temporary usage bans applied to customers, to restrict customer water usage in areas where the water company is experiencing, or may experience, a serious shortage of water for distribution, in addition to level 1 and 2 water efficiency and leakage activities.
9.19	Reduced levels of service, moving to 1:500 to 1:200	6.51	2025	Reduce levels of service from 1 in 200 to 1 in 500 (only until 2049/50)
57.07	Demand Strategy 7	66.81	2025	This option will involve: <ul style="list-style-type: none"> • Full urban smart AMI by 2030, rural also by 2035 • Household water efficiency checks to be at the largest feasible scale by 2030 • Non-household water efficiency checks to be at the largest feasible scale by 2030 • Leakage profile will be linear to 2050 (~1 MI/d).

6.2.35 Table 6.4 presents the summary of the construction and operational effects of the preferred demand management and metering options. The likely significant effects are then detailed in the remainder of the subsection.

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Table 6.4 Summary of Preferred Demand Management and Metering Option Assessments

Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
9.16	Construction (negative)	-/?	0	0	0	0	-/?	0	0	0	0	-/?	0	0
	Construction (positive)	0	0	0	0	0	0	0	0	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	+/?	+++	+++	+++	+++	+/?	0	0
9.19	Construction (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Construction (positive)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (negative)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	+/?	++	++	++	++	+/?	0	0
57.07	Construction (negative)	0	0	0	-/?	--/?	---	-/?	-/?	-/?	0	---	0	0
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	0	0	-	0	0	0	0	0	0	0	0
	Operation (positive)	0	0	0	0	0	+++	+++	+++	+++	+++	0	0	0



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9.16 Temporary Use Bans

Construction

6.2.36 No significant positive or negative effects were identified for the construction phase of option 9.16.

Operation

6.2.37 Option 9.16 was assessed as having a significant positive effect against climate change (SEA Objective 7), economic and social wellbeing (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10), during operation, as the operational water savings (22.93 MI/d) that the option would provide, would help to ensure a continual supply of clean drinking water, thereby supporting economic/population growth, generating a positive effect on human health and increasing adaptability to the effects of climate change.

6.2.38 No further significant positive or negative effects were identified in the assessment of the operational phase of option 9.19.

9.19 Reduced levels of service, moving to 1:500 to 1:200

Construction

6.2.39 Option 9.19 would not require any construction or implementation activities and hence neutral effects were identified against all objects in the assessment of the construction phase of this option.

Operation

6.2.40 No significant positive or negative effects were identified in the assessment of the operational phase of option 9.19.

57.07 Demand Strategy 7

Construction

6.2.41 Option 57.07 was assessed as a significant positive effect on economic and social wellbeing (SEA Objective 8) during the construction phase, associated with the significant capital expenditure (capital spend of \geq £15m) that would be required to implement the option, which could have a positive effect on the local economy through the generation of job opportunities and use of local supply chains, in addition to increased spend in the local economy by contractors and construction workers.

6.2.42 No further significant positive effects were identified in the assessment of the construction phase of option 57.07.

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- 6.2.43 The implementation of option 57.07 would require the use of significant quantities materials (e.g. for the production of smart meters and materials required for leakage repairs) with embodied carbon and would be likely to lead to waste (e.g. packaging, waste materials associated with leakage repairs). The option would also require vehicle movements and the operation of plant and machinery (associated with leakage repairs/works), with resultant effects on greenhouse gas emissions. Given the scale of the option and required materials (and potential for waste generation) and the associated embodied carbon (>7,500 tCO₂e), the construction of the option was assessed as having a significant negative effect on greenhouse gas emissions (SEA Objective 6) and waste and materials (SEA Objective 11). However, a minor positive uncertain effect was also identified against SEA Objective 11, reflecting the possibility that waste materials (such as metals or plastics) could be re-used or recycled, however, the significance of such an effect is currently unknown.
- 6.2.44 No further significant negative effects were identified during the assessment of the construction phase of option 57.07.

Operation

- 6.2.45 Option 57.07 was assessed as having a significant positive effect on greenhouse gas emissions (SEA Objective 6) as the operation of the option would result in significant reduction in operational carbon emissions (>1,000 tonnes CO₂e/annum).
- 6.2.46 Option 57.07 was assessed as having a significant positive effect against climate change (SEA Objective 7), economic and social wellbeing (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10) during operation, as the operational water savings (66.81Ml/d) that the option would provide, would help to ensure a continual supply of clean drinking water, thereby supporting economic/population growth, generating a positive effect on human health and increasing adaptability to the effects of climate change.
- 6.2.47 No further significant positive effects were identified in the assessment of the operational phase of option 57.07.
- 6.2.48 No further significant negative effects were identified in the assessment of the operational phase of option 57.07.

6.3 Revised Draft WRMP Preferred Programme Assessment

- 6.3.1 Table 6.5 presents the cumulative assessment of the strategic effects of the Revised Draft WRMP24 preferred programme of options. Note where effects have been quantified, they are in aggregate, across the lifetime of the plan.

Table 6.5 Preferred Programme Assessment

SEA Objective	Cumulative score	Commentary
<p>1. To protect, restore and enhance biodiversity, including designated sites of nature conservation interest, protected habitats and species, enhance ecosystem services and resilience and deliver a net biodiversity gain.</p>	<p>++/--</p>	<p>The construction phase will lead to some effects due to loss of/disturbance of habitats and species although given the distance between the options no additional cumulative effects (over and above the effects recorded above in Section 6.2) are assessed.</p> <p>Likely significant uncertain effects on biodiversity were assessed for options 70.01 and 70.06. This reflects that pipeline routes as currently proposed for the two options would lead to direct effects on the Spye Park and Roundway Down and Covert SSSI's (70.01) and on the Whitesheet Hill SSSI and two areas of Ancient Woodland (70.06). However, WWSL have agreed that further works will be undertaken on both options to avoid and mitigate effects at the scheme level which will include detailed routing that avoids effects, preferentially follows existing roads or other appropriate linear infrastructure and through the application construction best practice/mitigation.</p> <p>The HRA identifies potential in combination effects on a number of mobile species sites (Bath and Bradford-on-Avon Bats SAC, Bracket's Coppice SAC, Mells Valley SAC) and the Salisbury Plain SAC and SPA from options 39.02, 70.01 and 70.06. The HRA concludes that there are no direct effects on the sites and that any effects on habitats that are functionally critical to the integrity of the sites will be t, and risks during construction will be low (based on the indicative pipeline routes and nature of the infrastructure) which can clearly be managed / avoided using established project-level measures</p> <p>Overall, given the further revisions to made to 70.01 and 70.06 and the conclusions that direct adverse effects on the designated sites are avoidable, a cumulative moderate negative uncertain effect is assessed (reflecting the residual uncertainties and the potential for possible indirect effects.</p> <p>Through the implementation of biodiversity net gain requirements the operational phase is expected to lead to some positive effects with regard to biodiversity, through for example, the provision of substantial off site habitats, equivalent to at least 16.18 hectares (of a predominately grassland). Overall, this is likely to have a moderate positive effect on this objective. Therefore, a mix of moderate positive and significant negative effects are assessed.</p>
<p>2. To protect and enhance soil quantity, quality and functionality and geodiversity and contribute to the sustainable use of land.</p>	<p>+/-</p>	<p>Construction and operation of water resources infrastructure could affect existing land uses due to land take associated with new development. This may result in clearance of vegetation and loss of soil levels leading to the loss of soil function and processes. Some of the preferred programme options would take place on PDL land or existing operational land which may support achievement of the objective. Therefore, a likely mixed minor positive and moderate negative score is assessed for the preferred programme of options.</p>
<p>3. To maintain, protect and enhance surface and ground water resource levels, flows and quality</p>	<p>-/?</p>	<p>The WFD assessment found that all of the preferred options were compliant. One option (39.01) has a moderate negative uncertain effect identified arising during construction from the potential for the reservoir to be drained. For other options (59.01, 70.01 and 70.06), a minor negative uncertain effect has been identified arising from the potential effects from pollution/debris entering into water bodies (but which could be avoided by best practice mitigation measures). A minor negative uncertain effect was identified for one option (39.02) in operation in the WFD assessment as some further modelling has been recommended on a precautionary basis.</p> <p>Overall, a minor negative uncertain effect has been assessed.</p>

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SEA Objective	Cumulative score	Commentary
4. To reduce or manage flood risk.	--	<p>The preferred demand management options would have no effects on water quality.</p> <p>A number of the options (39.02, 59.01, 70.01 and 70.06) within the preferred programme will be located fully or partially within Flood Zone 3. However, the risk is localised, and the options are not expected to exacerbate flood risk issues elsewhere. Owing to the distance between the options that comprise the preferred programme, their collective implementation is not expected to increase the level of flood risk over and above that associated with the construction and operation of each option, as reported in Section 6.2. Given the potential flood risk for the options that comprise the preferred programme, a cumulative moderate negative effect has been assessed.</p>
5. To minimise emissions of pollutant gases and particulates and enhance air quality.	---	<p>Construction of the preferred programme of options will generate emissions to air which could affect local air quality. The principal source of emissions would be pollutants associated with vehicle movements. Vehicle emissions could affect sensitive receptors along transport corridors and effects are likely to be more pronounced where development is located within/in close proximity to Air Quality Management Areas (AQMAs). Although none of the preferred programme of options are within an AQMA, given the scale of development envisaged to deliver options 70.01 and 70.06 there is expected to be significant construction traffic movements and associated emissions. No additional cumulative effects (from options interacting) has been identified.</p> <p>Overall, it is concluded that there will likely be significant negative localised air quality effects during the construction phase. In the operational phase these effects linked to vehicle movements are expected to be minor.</p>
6. To reduce embodied and operational greenhouse gas emissions.	+/----	<p>In total, the construction of the preferred programme of supply side options will require materials with 29,051 tCO₂e embodied carbon. Construction will also generate a substantial volume of vehicle movements which, together with the operation of plant and machinery, will additionally contribute to carbon emissions. In operation, the preferred programme of options would generate an estimated 2,171 tCO₂e per annum. Overall, these figures are significant.</p> <p>The demand management, leakage and metering options require significant quantities of materials with 223,540 tCO₂e embodied carbon. However, it will see a reduction in carbon linked to reduced demand for water. This is equivalent to a reduction of an average operational carbon reduction of 79 tCO₂e. Overall, mixed significant negative and minor positive effects are assessed.</p>
7. To adapt and improve resilience to the threats of climate change.	+++/-	<p>Cumulatively the preferred programme of options would increase the capacity by supply of 26.18 M/d, include a demand management reduction of 96.25 MI/d which would make a significant contribution towards securing a continual supply of clean drinking water and increase resilience of this supply, thereby increasing resilience and adaptability to the effects of climate change.</p> <p>However, as noted for SEA Objective 4 several options are located in Flood Zone 3 which may reduce resilience to climate change. Overall, the cumulative effect is considered to be a mix of significant positive and moderate negative effects.</p>
8. To promote a sustainable economy and maintain and enhance the economic and social well-being of local communities.	+++/-	<p>The supply side options will involve significant capital expenditure during the construction phase. This is considered to have a significant positive effect on the local economy through job creation and use of local supply chains which could provide the potential for a number of local businesses and SMEs to have sustained involvement and opportunities in construction.</p> <p>In the operational phase the preferred programme of options would support the delivery of 26.18 MI/d of clean drinking water whilst the demand management</p>

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SEA Objective	Cumulative score	Commentary
9. To protect and enhance human health and well-being.	  <p style="text-align: center;">+++ / --</p>	<p>options would reduce the amount of water used. This will, in-turn, support population and economic growth which would also support achievement of a cumulative significant positive effect.</p> <p>However, given the potential effects of construction on driver delay and disruption there are likely to be some negative effects from the preferred option programme. A mix of significant positive and minor negative effects are assessed.</p> <p>The construction of water resources infrastructure can adversely affect traffic, noise, vibration, air quality and emission. These effects are temporary but can be of scale that is significant to specific locational receptors. However, overall, the impact is not considered to be significant given the distance between options and the likely different implementation phases. Whilst one option (59.01) is within 1km of a component of 70.06, no additional cumulative effects (from options interacting) has been identified.</p> <p>In the operational phase the effects on health primarily relate to the provision of 26.18 MI/d of clean drinking water across the Wessex Water area. Therefore, cumulatively a mix of significant positive and moderate negative effects are assessed. The negative effects will largely be temporary.</p>
10. To promote and enhance the sustainable and efficient use of resilient water resources.	 <p style="text-align: center;">+++</p>	<p>The preferred programme of options will help to support the resilience of water resources in the Wessex Water area. The preferred programme will cumulatively support a demand management reduction of 96.25 MI/d and support the provision of 26.18 MI/d of deployable output. This is considered to be significant.</p>
11. To minimise waste, promote resource efficiency and move towards a circular economy.	 <p style="text-align: center;">---</p>	<p>Given the cumulative concrete, steel and plastics that will be required to construct the preferred programme of supply options there is likely to be a significant amount of waste generated (although there is some potential for re-use of materials the presence and extent is uncertain). Additionally, the options would generate waste during operation related to chemical use, vehicle movements and energy use.</p> <p>Cumulative significant negative effects have therefore been assessed for this objective.</p>
12. To conserve and enhance the historic environment including the significance of heritage assets and their settings and archaeologically important sites.	 <p style="text-align: center;">---</p>	<p>The development of water resources infrastructure may result in indirect (e.g. impacts on setting) adverse effects on the significance of heritage assets including scheduled monuments, listed buildings and registered parks and gardens where they are in close proximity to works. Two options (70.01 and 70.06) include new infrastructure proposals that could directly affect Scheduled Monuments (including the Roman road in Spye Park, White Sheet Hill ditch; Neolithic causewayed camp, White Sheet Downs), Listed Buildings, Spye Park and Montecue Registered Park and Gardens. The proposed options would also be within 1km of a number of other sensitive heritage assets (including the City of Bath WHS for 70.01).</p> <p>Effects could be avoid, minimised or mitigated through further review of proposed siting and pipeline routes. It is also noted that for 70.01, the proposed route follows the route of a pre-existing pipeline or existing roads and that where assets are crossed, works would take place on previously disturbed ground, which may provide some mitigation.</p> <p>The preferred programme of options is considered to cumulatively have significant negative effects given the potential for direct effects and on the settings of these heritage assets.</p>
13. To conserve, protect and enhance landscape,	 <p style="text-align: center;">---</p>	<p>The construction and operation of the preferred programme of options would likely have negative effects on landscape/townscape. A number of options are</p>

SEA Objective	Cumulative score	Commentary
seascape and townscape character and visual amenity.		<p>identified as being located fully or partially within designated landscapes. Options 70.06 would involve significant works within the Cranborne Chase and West Wiltshire Downs AONB, whilst option 70.01 would involve works within the North Wessex Downs AONB.</p> <p>Many of the options are within rural or semi-rural landscapes and will likely have moderate or minor negative effects during construction phase. Where works are in close proximity to residential and recreational receptors, construction activity associated with the preferred programme may also have short term effects on visual amenity. Where above ground infrastructure forms part of the operational phase there are also likely to be negative effects sustained. Overall, given the location of a number of options within designated landscapes and potential for significant effects during the construction phase, cumulative significant negative effects are assessed.</p>

6.4 Reasonable Alternative Plan Assessment

6.4.1 Wessex Water has developed different plan options and tested these under different future growth and demand scenarios to address the future predicted supply deficits both at a companywide level and also at a sub-zone level. This has primarily been for cost comparison purposes. Specific scenarios and variants considered have included different suites of options selected if:

- the demand management strategy is less effective than forecast;
- certain options are not available; and/or
- there is increased demand from specific customers within Wessex Water’s operational area.

6.4.2 On the basis of those options most commonly selected for the above scenarios and variants if the revised preferred options were not available, and in order that Wessex Water had an alternative best value programme considered to be consistent with the SEA reasonable alternative requirements, the following four options presented in Table 6.6 have been identified. Table 6.7 presents the findings of the assessment.

Table 6.6 Summary of Reasonable Alternative Supply Options

Option ID	Option Name	Yield	Description
30.02	Pump Storage - Quantock Reservoir	2	Pump storage scheme to help conserve reservoir storage in the winter for summer use, by pumping from a local river in winter time, when there is more flow in the river, into a reservoir in the Quantock hills.
52.02	Poole Water Recycling and Transfer –	12.5	Option to use highly treated effluent in the Poole area to support flows in the River Stour and enable existing abstraction to continue in the catchment

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Option ID	Option Name	Yield	Description
	Stour use 50%		
52.03	Poole Water Recycling and Transfer – Stour use 100%	25	Option to use highly treated effluent in the Poole area to support flows in the River Stour and enable existing abstraction to continue in the catchment
70.03	Bristol Import and onwards transfer III	15	This option is a combination of the following schemes: 58_01 and 55_10 and 55_11 and 55_09

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Table 6.7 Reasonable Alternative Supply Options Assessment

Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
30.02	Construction (negative)	-	-	-/?	--	-	-	-	-	0	0	-	-	--
	Construction (positive)	0	0	0	0	0	0	0	+	0	0	+/?	0	0
	Operation (negative)	--/?	0	0	--	0	-	0	--	--	--	-	-	-
	Operation (positive)	0	0	0	0	0	0	+	+	+	+	0	0	0
52.02	Construction (negative)	---/?	--	-/?	--	---	---	-	--	--	0	---	--	--
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	-/?	0	---	-	0	--	0	0	0	0	-	-	-
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0
52.03	Construction (negative)	---/?	--	-/?	--	---	---	-	--	--	0	---	--	--
	Construction (positive)	0	0	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	-/?	0	---	-	0	--	0	0	0	0	-	-	-
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0
70.03	Construction (negative)	---	---	-/?	--	---	---	-	---	--	0	---	---	---

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Option	Stage	1. Biodiversity	2. Soils, Geodiversity and Land Use	3. Water Quality	4. Flood Risk	5. Air Quality	6. Greenhouse Gas Emissions	7. Climate Change Resilience	8. Economic and Social Well-being	9. Human Health	10. Water Resources	11. Waste and Materials	12. Historic Environment	13. Landscape
	Construction (positive)	0	+	0	0	0	0	0	+++	0	0	+/?	0	0
	Operation (negative)	0	0	-/?	--	0	---	0	0	0	0	-/?	-	-
	Operation (positive)	0	0	0	0	0	0	+++	+++	+++	+++	0	0	0

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30.02 Pump Storage – Quantock Reservoir

Construction

6.4.3 No significant positive or negative effects were identified for the construction phase of option 30.02.

Operation

6.4.4 No significant positive or negative effects were identified for the operational phase of option 30.02.

52.02 Poole Water Recycling and Transfer – Stour use 50%

Construction

- 6.4.5 Option 52.02 has been assessed as having a significant positive effect on economic and social well-being (SEA Objective 8) during the construction phase. This reflects the scale of the option and how the requirement for large capital investment (>£15 million) would be likely to generate a number of employment opportunities and supply chain benefits as well as increased spend in the local economy by contractors and construction workers.
- 6.4.6 No further significant positive effects were identified against any SEA objectives for the construction phase of option 52.02.
- 6.4.7 Option 52.02 has been identified as having a significant negative uncertain effect against biodiversity (SEA Objective 1) during the construction phase. The option crosses the Dorset Heathlands SPA and Ramsar, and the Dorset Heaths SAC, as well as the Corfe & Barrow Hills SSSI and Corfe Hills LNR. The option is within 1km of numerous other designated sites, as well as Ancient Woodlands. Construction of the scheme could affect these designated features through direct landtake, noise and disturbance although such effects could be reduced through appropriate mitigation and best practice construction measures. More generally construction of the scheme could affect non-designated habitats and species through direct landtake or disturbance (e.g. noise, vibration, dust). The HRA risk assessment of option 52.02 concluded that for option construction, it is likely that there would be opportunities to mitigate or avoid effects at the scheme level (for example, through detailed routing and modifications to pipeline routes and through the application construction best practice/mitigation).
- 6.4.8 The option also been identified as having a significant negative effect on air quality (SEA Objective 5), during construction. Due to the scale of the investment and construction involved it is expected that there would be impacts on traffic congestion during the construction period, which could have a negative effect on local air quality. Given the scale of development this is considered to be a significant negative effect (>£50m capital expenditure).
- 6.4.9 Option 52.02 has also been identified as having a significant negative effect on greenhouse gas emissions (SEA Objective 6), during construction. This reflects the scale of

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the option and the amount of embodied carbon associated with materials (>7,500 tonnes CO₂e).

- 6.4.10 Option 52.02 has also been assessed as having a significant negative effect on waste and materials (SEA Objective 11) during the construction phase. This reflects the scale of construction required for the option and associated material requirements (for example concrete and steel) and the anticipated construction waste arisings. However, a minor positive uncertain effect was also assessed against waste and materials (SEA Objective 11) during the construction phase, reflecting the possibility that waste building materials such as steel and plastic, could be re-used or recycled. However, the significance of this is currently unknown.
- 6.4.11 No other significant negative effects were assessed against any SEA objectives for the construction phase of option 52.02.

Operation

- 6.4.12 Option 52.02 has been assessed as having a significant positive effect on climate change resilience (SEA Objective 7), economic and social well-being (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10) during its operation. This reflects that the additional water provided by the option (12.5MI/d) would help to ensure a continual supply of clean drinking water and increase the resilience of supply, thereby increasing adaptability to the effects of climate change. A continual supply of clean drinking water and increased resilience is likely to also support economic/economic growth and support economic social well-being as well as human health.
- 6.4.13 No other significant positive effects were identified for the operational phase option 52.02
- 6.4.14 Option 52.02 has been assessed as having a significant negative effect on water quality (SEA Objective 3), during the operational phase. The WFD Level 2 assessment concludes that operation of the options would be non-compliant (certainty level – risk), due to the reduction in flows into Poole Harbour and the introduction of a new WTW discharge on the Stour (Lower) Water Body (although it is noted that there would be a reduction in abstraction licence take.
- 6.4.15 No other significant negative effects were identified for the operational phase of option 52.02.

52.03 Poole Water Recycling and Transfer – Stour use 100%**Construction**

- 6.4.16 Option 52.03 has been assessed as having a significant positive effect on economic and social well-being (SEA Objective 8) during the construction phase. This reflects the scale of the option and how the requirement for large capital investment (>£15 million) would be likely to generate a number of employment opportunities and supply chain benefits as well as increased spend in the local economy by contractors and construction workers.
- 6.4.17 No further significant positive effects were assessed against any SEA objectives for the construction phase of option 52.03.

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- 6.4.18 Option 52.03 has been assessed as having a significant negative uncertain effect against biodiversity (SEA Objective 1) during the construction phase. The option crosses the Dorset Heathlands SPA and Ramsar, and the Dorset Heaths SAC, as well as the Corfe & Barrow Hills SSSI and Corfe Hills LNR. The option is within 1km of numerous other designated sites, as well as Ancient Woodlands. Construction of the scheme could affect these designated features through direct landtake, noise and disturbance although such effects could be reduced through appropriate mitigation and best practice construction measures. More generally construction of the scheme could affect non-designated habitats and species through direct landtake or disturbance (e.g. noise, vibration, dust). The HRA risk assessment of option 52.03 concluded that for option construction, it is likely that there would be opportunities to mitigate or avoid effects at the scheme level (for example, through detailed routing and modifications to pipeline routes and through the application construction best practice/mitigation).
- 6.4.19 The option also been identified as having a significant negative effect on air quality (SEA Objective 5), during construction. Due to the scale of the investment and construction involved it is expected that there would be impacts on traffic congestion during the construction period, which could have a negative effect on local air quality. Given the scale of development this is considered to be a significant negative effect (>£50m capital expenditure).
- 6.4.20 Option 52.03 has also been identified as having a significant negative effect on greenhouse gas emissions (SEA Objective 6), during construction. This reflects the scale of the option and the amount of embodied carbon associated with materials (>7,500 tonnes CO_{2e}).
- 6.4.21 Option 52.03 has also been assessed as having a significant negative effect on waste and materials (SEA Objective 11) during the construction phase. This reflects the scale of construction required for the option and associated material requirements (for example concrete and steel) and the anticipated construction waste arisings. However, a minor positive uncertain effect was also assessed against waste and materials (SEA Objective 11) during the construction phase, reflecting the possibility that waste building materials such as steel and plastic, could be re-used or recycled. However, the significance of this is currently unknown.
- 6.4.22 No other significant negative effects were assessed against any SEA objectives for the construction phase of option 52.03.

Operation

- 6.4.23 Option 52.03 has been assessed as having a significant positive effect on climate change resilience (SEA Objective 7), economic and social well-being (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10) during operation. This reflects that the additional water provided by the option (25MI/d) would help to ensure a continual supply of clean drinking water and increase the resilience of supply, thereby increasing adaptability to the effects of climate change. A continual supply of clean drinking water and increased resilience is likely to also support economic/economic growth and support economic social well-being as well as human health.
- 6.4.24 No other significant positive effects were identified for the operational phase option 52.03.

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- 6.4.25 Option 52.03 has been assessed as having a significant negative effect on water quality (SEA Objective 3), during the operational phase. The WFD Level 2 assessment concludes that operation of the options would be non-compliant (certainty level – risk), due to the reduction in flows into Poole Harbour and the introduction of a new WTW discharge on the Stour (Lower) Water Body (although it is noted that there would be a reduction in abstraction licence take).
- 6.4.26 No other significant negative effects were identified for the operational phase of option 52.03.

70.03 Bristol Import and onwards transfer III

Construction

- 6.4.27 Construction of option 70.03 would require a large capital investment (>£15 million) that would be likely to generate a number of employment opportunities and supply chain benefits, in addition to increased spend in the local economy by contractors and construction workers. As such the option has been assessed as having a significant positive effect on economic and social well-being (SEA Objective 8).
- 6.4.28 No other significant positive effects were identified in the assessment of the construction phase of option 70.03.
- 6.4.29 The construction of option 70.03 was assessed as having a significant negative effect on biodiversity. This reflects that the option would involve construction works crossing three LNR's (Green Lane Wood, Carrs Woodland and Twerton Roundill) and seven areas of Ancient Woodland and as such construction of the scheme could affect these designated features through direct landtake (where sites are crossed by the works), noise and disturbance, although such effects could be reduced through appropriate mitigation and best practice construction measures. Disturbance effects would also potentially occur to a large number of other designated sites. However, the HRA highlights that significant effects on European sites should be avoidable through the use of established measures.
- 6.4.30 Option 70.03 was assessed as having a significant negative effect on soils, geodiversity and land use (SEA Objective 2) during the construction phase which principally reflects the loss of greenfield land including that which is 'best and most versatile' (land classified as 'best and most versatile land' is generally defined as agricultural land which falls into Grades 1, 2 and 3a), which due to the scale of the option and area of greenfield land it would cross is considered to be significant. The option was also identified as crossing nine areas identified as being historic landfill sites, with the potential to expose contaminated material during groundworks for construction. It is however, noted that a minor positive effect was also identified against this objective during construction as certain elements of the scheme (pumping stations and water storage) would be constructed within existing operational sites or within the existing road network (PDL).
- 6.4.31 Construction activity associated with option 70.03 would generate emissions to air associated with construction vehicle movements, in addition to the use of plant and machinery. Given the scale of the construction works (capital spend >£50m) and the anticipated associated number of vehicle movements and likelihood of increased

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congestion in the area areas surrounding the works, a significant negative effect on air quality (SEA Objective 5) has been identified.

- 6.4.32 Furthermore, the construction of option 70.03 would require the use of materials with embodied carbon in addition to construction vehicle movements to transport materials and equipment to site alongside the operation of plant and machinery, with resultant effects on greenhouse emissions (SEA Objective 6). The option has been assessed as significant negative effect in this regard, due to the scale of the embodied carbon (>7,500 tCO₂e) associated with the option.
- 6.4.33 Construction works associated with option 70.03 could result in increased congestion and disruption/driver delay on the road network due to associated vehicle movements, including on a number of A roads and B roads. The proposed scheme could also directly affect recreational activity on Iford Manor, Kelston Park and potentially other public greenspaces as well as various footpaths. Given the scale of works and associated potential for disruption, the construction of the option was assessed as having a significant negative effect on economic and social wellbeing (SEA Objective 8) during construction.
- 6.4.34 Option 70.03 was assessed as having a significant negative effect on waste and materials (Objective 11) during construction, associated with the significant requirement for materials such as concrete, steel and plastic to undertake the construction works and the associated potential for waste generation. However, a minor positive uncertain effect was also identified against this objective, due to the potential for waste building materials such as steel and plastic, to be re-used or recycled (however, the significance of this is unknown and as such there remains uncertainty).
- 6.4.35 The option would include a section of pipeline works within the City of Bath World Heritage Site, in addition to works crossing: a Scheduled Monument (Part of a Roman road 565m north of Abbey Farm); 13 Listed Buildings (The White Hart Inn, Wall and Archway West of the Old Vicarage (approximately 50 yards long immediately north of lych gate), Mulberry Cottage, The Lodge to Southstoke Hall, Barn and Cowstalls to east of Northmead Farmhouse, Boundary Post on A367 at National Grid Reference ST 7338 6167, The Old Vicarage, The White House, Manor House, Greenacres, Castle Lodge, Milestone at ST 9779 6285 North West of Bridge by Rowde Petrol Filling Station), and 16, Bratton Road); five Conservation Areas (Westwood, Bitton, Siston, Bath and Southstoke); and a Registered Battlefield (Battle of Roundway Down 1643). Construction would also be situated within close proximity to a significant number of other heritage assets. Due to the potential for effects on the settings of these heritage assets and potential direct impacts/loss of the assets which would be crossed, the construction of option 70.03 was assessed as having a significant negative effect on the historic environment (SEA Objective 12). It is however, assumed that further detailed design at the design stage could minimise/avoid crossings of assets.
- 6.4.36 The option was also assessed as having a significant negative effect on landscape (SEA Objective 13). This reflects that approximately 4.5km of the proposed pipeline construction works between Pucklechurch SR and Newton Meadows PS and approximately 6.8km of the proposed pipeline construction works between Englishcombe Service Reservoir to West Ashton Service Reservoir would be located within the Cotswolds AONB, whilst works at the Newton Meadows site would be immediately adjacent to the AONB. As such,

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construction works could affect the visual amenity of the designated features. The option would also be situated approximately 3.5km from the Cranborne Chase & West Wiltshire Downs AONB and 0.5km from the North Wessex Downs AONB (0.5km at closes point), and would introduce above ground infrastructure that could affect the visual amenity of the designated features.

- 6.4.37 No other significant negative effects were identified during the assessment of the construction phase of option 70.03.

Operation

- 6.4.38 Option 70.03 was assessed as having a significant positive effect against climate change (SEA Objective 7), economic and social wellbeing (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10) during operation, as the operational water savings (15MI/d) that the option would provide, would help to ensure a continual supply of clean drinking water, thereby supporting economic/population growth, generating a positive effect on human health and increasing adaptability to the effects of climate change.
- 6.4.39 No further significant positive effects were identified in the assessment of the operational phase of option 70.03.
- 6.4.40 The operational phase of option 70.03 has been assessed as having a significant negative effect on greenhouse gas emissions (SEA Objective 6), as the operation of the option would result in significant carbon emissions (>2,000 tonnes CO₂e) associated with the energy required for treatment and pumping of water.
- 6.4.41 No further significant negative effects were identified in the assessment of the operational phase of option 70.03.

Conclusion

- 6.4.42 The reasonable alternative supply options would provide increased supply relative to the revised preferred options (42 MI/d as opposed to 26 MI/d) providing greater resilience to the supply and assessed as having a significant positive effect against climate change (SEA Objective 7), economic and social wellbeing (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10). However, in providing increased supply, the selected reasonable alternative options include those with likely significant effects for construction (against biodiversity (SEA Objective 1), air quality (SEA Objective 5), greenhouse gas emissions (SEA Objective 6) and waste and resources (SEA Objective 11) and operation for water (SEA Objective 3). Whilst the HRA of the selected options indicates that the significant effects on European sites could be avoided through the use of established measures, there is a heightened WFD non-compliance risk (associated with 52.02 and 52.03).
- 6.4.43 Overall, the reasonable alternative supply options are considered to perform less well against the SEA objectives than the preferred programme of options, and also have a WFD non-compliance risk, not anticipated with the preferred plan.

6.5 Secondary, Cumulative and Synergistic Effects Assessment

Introduction

- 6.5.1 The SEA Regulations require that the cumulative effects of the Revised Draft WRMP24 are assessed. This includes the cumulative effects of the individual preferred options that comprise the preferred programme and the effects of the Revised Draft WRMP24 in combination with other plans and programmes.
- 6.5.2 The cumulative effects of the individual options that comprise the preferred programme of WRMP24 options have already been presented in Section 6.3. This section therefore considers the cumulative effects of the Revised Draft WRMP24 in combination with other plans and programmes, including:
- the Revised Draft WRMP24 with other Wessex Water plans (Wessex Water's Drought Plan and Drainage and Wastewater Management Plan (DWMP));
 - the Revised Draft WRMP24 with adjacent water company plans and projects (SROs);
 - the Revised Draft WRMP24 as part of the WRW draft West Country Water Resources (WCWR) draft Group Regional Plan;
 - the Revised Draft WRMP24 with other plans e.g., Local Plans, National Policy Statements (NPSs);
 - the Revised Draft WRMP24 with other Nationally Significant Infrastructure Projects (NSIPs).
- 6.5.3 The cumulative effects of the Revised Draft WRMP24 are difficult to accurately assess given the inherent uncertainties concerning (inter alia): future changes to baseline environmental conditions; future population and economic growth; the deliverability of some NSIPs (and the potential for new NSIPs to be brought forward); and the proposals of emerging water company WRMPs. As such, it will be necessary to keep under review these factors as the preferred programme is implemented (e.g. in Environmental Impact Assessments (EIA) and HRAs) to ensure that the latest and most up to date information is taken into account.

Other Wessex Water plans

Wessex Water's Drought Plan

- 6.5.4 Wessex Water's Drought Plan Final Plan, published in June 2022, identifies the actions that Wessex Water will take before, during, and after a drought to maintain a secure supply of water and outlines how it will assess and mitigate against the environmental impacts of its actions. The Plan includes a range of drought management actions (linked to drought triggers), that can be broadly categorised as:
- Demand-side actions: those that reduce demand, such as water efficiency campaigns.
 - Supply-side actions: those that increase supply, such as increased abstraction.

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6.5.5 The main drought related factors outlined in the Drought Plan are:

- Reservoir Storage - Water available from reservoirs, as controlled by natural catchment inflows and pump storage availability. During drought reservoir inflows will be lower, and lower river levels will restrict available pumping to storage.
- Groundwater Yield - Hydrogeological constraints on water availability from groundwater sources when groundwater levels become low during drought.
- Licence Volumes - Licence constraints on the total available abstraction throughout the year. During a drought, high demands during peak-summer periods and constraints on hydro-geologically constrained sources mean more abstraction from licence constrained sources.

6.5.6 The Drought Plan sets out a range of actions to address drought conditions. Table 6.10 sets out the extreme drought actions.

Table 6.8 Extreme Drought Actions

Type of Action	Summary	Trigger for action being used	Likely benefit/saving (MI/d)
Demand	Water Efficiency – Phase 3	Low groundwater or reservoir levels within drought management level 3	Up to 40MI/d
Demand	Enhanced Leakage Control – Phase 3	Low groundwater or reservoir levels within drought management level 3	Up to 0.86MI/d over a year
Supply	Reduce Stream support	Low groundwater levels drought management level 3	0.86 MI/d
Supply	Abstraction from Nutscale reservoir	Severely low reservoir storage within drought management level 3	1-2 MI/d

6.5.7 The Revised Draft WRMP24 includes the drought measures (e.g. options 9.16, 41.01 and 41.06) and complements and is consistent with the Drought Plan. It is not anticipated that there would be any additional adverse cumulative effects from implementation of the Revised Draft WRMP24 in-combination with the Drought Plan. The WRMP24 would support effective drought management through restrictions on use, leakage reduction and compulsory basic metering of unmetered customers, as part of the preferred programme of Revised Draft WRMP24. The demand management options will also result in reduced required abstraction at source.

Wessex Water's Drainage and Wastewater Management Plan

6.5.8 The DWMP sets out how Wessex Water intends to extend, improve and maintain a robust and resilient drainage and wastewater system considering the pressures of climate change, population growth and growing customer expectations. The plan takes a long-term view, setting out responses to drainage and wastewater management challenges over a planning period of at least 25 years.

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- 6.5.9 The final DWMP was published in May 2023¹⁵⁰, following consultation on June 2022's draft publication. The DWMP operates at the following spatial levels:
- Level 1 (L1): Wessex regional area - Over-arching companywide plan which sets out key company objectives, risks faced and summarises investment needed.
 - Level 2 (L2): Catchment partnership areas/ Level 2b: Lead Local Flood Authority areas - Catchment plans co-created with stakeholders through strategic planning groups at a River Basin level. There are four catchment partnership areas in the Wessex Water DWMP area: Bristol Avon, Somerset, Hampshire Avon and Dorset. There are ten Lead Local Flood Authorities (LLFA) in the Wessex area.
 - Level 3 (L3): Water Recycling Centre catchments - Drainage area plans which assess how future changes will affect catchment performance and the steps that are needed to be put in place to manage risks.
 - Level 4 (L4): Customers / community / parish council(s) / town council(s) areas
- 6.5.10 Wessex Water has identified drainage areas where drainage, flooding, pollution and treatment risks have been identified now or in the future. Short, medium and long-term interventions are being developed to address the identified risks at the L2/L3 level. Wessex Water has developed a range of options based around the following themes:
- Customer Side Management;
 - Surface Water Management;
 - Combined and Foul Sewer Systems;
 - Wastewater Treatment; and
 - Indirect Measures.
- 6.5.11 No additional negative cumulative construction effects are expected from the implementation of the WRMP24 in combination with the DWMP above those already identified for the draft programme of WRMP24 options in Section 6.3. The Revised Draft WRMP24 includes a range of measures (such as demand management and network resilience investment) which complement those set out in the DWMP. There may be specific instances where the schemes in the DWMP and WRMP24 are located in similar areas or catchments which may lead to localised cumulative effects at construction (affecting factors such as the economy, air quality, landscape or cultural heritage).
- 6.5.12 The DWMP options should at minimum do no harm to the water environment or communities in which they are located, and preferably make a (significant) contribution to enhancing the quality of each locality, by reducing the adverse effects arising from flooding and poor water quality. No additional, in-combination effects are therefore expected with regards to water quality.

¹⁵⁰ Wessex Water (2023) The Wessex area Drainage and wastewater management plan (DWMP). Available at: [DWMP \(wessexwater.co.uk\)](https://www.wessexwater.co.uk) [Accessed: August 2023]

FINAL REVISED**Adjacent water company plans and projects (SROs)**

- 6.5.13 The Strategic Water Resource Options (SROs) programme has been initiated by Ofwat to provide at least 1500MI/d of water to areas of England facing a water deficit. The SRO Programme includes 17 schemes which will be funded and assessed during AMP7 to determine the right portfolio of projects to be selected by Regional Plans ready for implementation in AMP8.
- 6.5.14 WcWR has identified potential Strategic Resource Options (SROs) to address this deficit, including the Cheddar Two Reservoir (Wessex Water), the Mendip Quarries Reservoir (South West Water and Wessex Water) and the Poole effluent recycling and transfer (South West Water and Wessex Water).
- 6.5.15 Schemes are evaluated at a series of decision points (Gates). There are four gates during this period. At each gate, companies submit information about their work on a solution, which is assessed to ensure companies are making progress on investigation and development of solutions. Gate 1 submission took place in 2021 and Gate 2 submission occurred in late 2022 for Cheddar Two and the Poole effluent SROs with the Mendip Quarries SRO submitted in July 2023 (and the decision is now awaited).
- 6.5.16 As part of the Gate 2 submission all schemes have been subject to desk-based assessments across WFD assessment, informal HRA, SEA, BNG, INNS Risk Assessment and carbon analysis.
- 6.5.17 Reflecting the SRO Gate 2 assessments, a range of effects have been identified for SEA topics:
- Major positive effects: Major positive effects were identified for biodiversity at both construction and operation relating to habitat creation at the reservoirs. Effects were also identified for the operational phase of the water objective, due to provision of a more reliable water supply
 - Moderate positive effects: Moderate positive effects were identified for landscape at the operational phase, due to improved visual amenity at the Mendip reservoir, and associated recreational activities relating to population and human health.
 - Minor positive effects: Were identified for climatic factors and population and human health (operational) due to increased resilience of water supplies. Minor positive effects were also identified due to the use of brownfield site for the Mendip reservoir (for material assets).
 - Major negative effects: Identified for construction and operation (pre- and post-mitigation) for biodiversity due to impacts on Natura 2000 sites, for climatic factors due to increased embodied carbon produced during construction and for water quality (associated with the Poole effluent recycling scheme and potential WFD non-compliance). Effects on the historic environment were also assessed as a major negative effect (pre- and post-mitigation).
 - Moderate negative effects: On soils (pre-mitigation) due to loss of Grade 3 agricultural land, as well as disturbance of contaminants given the close proximity to landfill sites. Landscape is also likely to experience moderate negative effects relating to impacts on the AONBs.

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- Minor negative effects: On soils (post-mitigation) due to loss of Grade 3 agricultural land, air quality (pre- and post-mitigation) during construction and water relating to post-mitigation flood risk. Other impacts relate to impacts on health and wellbeing of the local community during construction and increased resource use and waste production.

6.5.18 The activities beyond gate two would be influenced by the programme for implementing the schemes and the desk based assessments completed to date will be supplemented with further field surveys, modelling and monitoring, as well as further more detailed consideration of design elements to address effects on sensitive receptors arising from siting and routing of pipelines. Work will also include opportunities to create and improve habitat on-site and off-site through local schemes, Nature Recovery Networks and wildlife corridors.

West Country Water Resources Group draft Regional Plan

- 6.5.19 WCWR is one of five regional groups established to develop regional water resources plans, to ensure the continuous provision of resilient, efficient and sustainable water supplies for the future. The requirement was established by the National Framework for Water Resources. West Country Water Resources includes three water companies (Bristol Water, South West Water and Wessex Water). The draft Regional Plan focuses on demand management and supply options to address water supply deficits.
- 6.5.20 There is likely to be overlap between likely measures that will be forthcoming within the Regional Plan and those included within the Revised Draft WRMP24 and therefore there are likely to be cumulative effects where the plans work together to support effective management of water resources. As identified in Section 6.3 there are a range of likely significant effects for the preferred programme of WRMP24 options alone.
- 6.5.21 The WCWR draft Regional Plan may (dependent on locational aspects) lead to additional significant effects in relation to (for example) cultural heritage and landscape, where in combination with regional measures, the plans together would lead to development within (or close proximity to) designated landscapes or construction works take place within or in the settings of designated heritage assets.

Other plans

Local Plans

- 6.5.22 Population change in the Wessex Water region has already been considered in the Revised Draft WRMP24 along with the potential for further changes in demographics throughout the plan period. The Revised Draft WRMP24 has therefore been informed by expectations in local plans for new housing (and household) growth and expectations regarding economic and employment development within the area.
- 6.5.23 As a result, the in-combination water-resource effects of growth promoted by other plans (for example, local planning authority local plans and strategic growth plans) or projects are considered and accounted for during the Revised Draft WRMP24 development process. Arguably, therefore, potential in-combination effects in respect of water-resource

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demands due to other plans or projects are unlikely since these demands are explicitly modelled when determining the supply-demand balance. Conversely, in respect of water resources, the WRMP24 is not likely to make non-significant effects in other plans significant (indeed, other plans are arguably the 'source' of any potential effects in respect of water demand, with the WRMP24 having to manage potential effects that are not generated by the WRMP24 itself).

National Policy Statements (NPSs)

6.5.24 The Planning Act 2008 introduced a procedure to streamline the decision-making process for NSIPs. Under the Act, a developer wishing to construct a Nationally Significant Infrastructure Projects (NSIP) must first apply to the Secretary of State for development consent. National Policy Statements (NPSs) establish the need for specific types of infrastructure and provide planning guidance for promoters of NSIPs, and the basis for the examination by the Examining Authority and decisions by the Secretary of State on development consent order applications. A number of NPSs have been published which set out the definition, and in some cases the location, of NSIPs. The current status of NPSs is set out in Table 6.9.

Table 6.9 Current Status of National Policy Statements

National Policy Statement (NPS)	Status	Are Potential Locations of NSIPs included in the NPS?
Overarching Energy EN-1 ¹⁵¹	Designated July 2011	No
Fossil Fuel Electricity Generating Infrastructure EN-2	Designated July 2011	No
Renewable Energy Infrastructure EN-3	Designated July 2011	No
Gas Supply Infrastructure and Oil and Gas Pipelines EN-4	Designated July 2011	No
Electricity Networks Infrastructure EN-5	Designated July 2011	No
Nuclear Power Generation EN-6	Designated July 2011	Yes
Ports	Designated January 2012	No
Waste Water Infrastructure	Designated March 2012	Yes
Hazardous Waste Infrastructure	Designated June 2013	No
National Networks	Designated January 2015	No
Airports NPS: new runway capacity and infrastructure at airports in the South East of England	Designated June 2018	Yes
Water Resources Infrastructure	Designated April 2023	No
Geological Disposal Infrastructure	Designated July 2019	No

¹⁵¹ A revised draft National Policy Statement for Energy (and for EN2 to EN5) was published by the Government for consultation in September 2021.

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- 6.5.25 The Revised Draft WRMP24 is not expected to have any adverse cumulative effects in combination with the NPSs listed above. This is because the NPS are either not site specific or because specific NSIP proposals are unlikely to affect, or be affected by, the measures that comprise the Revised Draft WRMP24.
- 6.5.26 The Nuclear Power NPS (EN-6) sets out eight potentially suitable sites for the deployment of new nuclear power stations in England and Wales. Of these sites, one (Hinkley Point C) is located within the Wessex Water area.
- 6.5.27 Hinkley Point C was given approval as an NSIP in 2013 and is currently under construction by EDF following the government's decision in 2016 to proceed. It is expected to come on line by the end of 2025. The nuclear power station will comprise a twin unit UK European Pressurised Water Reactors (EPR) capable of generating 3,260MW of secure, low carbon electricity for 60 years.
- 6.5.28 The effects on the water environment have been taken into account in the examination of Hinkley Point C. Wessex Water has taken into account the water demands that will be required for the new reactor at Hinkley when operational. The nearest preferred option (18.10 - West Somerset Reservoirs transfer upgrade) is circa 13.5km from the Hinkley site and therefore not likely to have additional cumulative effects. Therefore, there are no additional cumulative effects in combination with Hinkley Point C above those identified within the assessment of the preferred options above.
- 6.5.29 Two NSIPs are set out in the Waste Water Treatment NPS; however, both of these are located in London and are not expected to have any effect on water demand in the Wessex Water region. Similarly, the Airports NPS concerns runway capacity in the South East of England only.
- 6.5.30 The NPS for water resources was designated in April 2023. This sets out the need for NSIPs related to water resources, and the Government's policies to deliver them. Whilst this NPS is not site specific, implementation of the Revised Draft DWMP is compatible with those objectives of the NPS for improving water supply resilience.

Nationally Significant Infrastructure Projects (NSIPs)

- 6.5.31 A number of other NSIPs that are not detailed in NPSs are listed on the Planning Inspectorate website¹⁵². At the time of writing, 16 additional projects in the South West region were at various stages:
- 1 at pre-examination;
 - 7 at pre-application;
 - 8 decided.
- 6.5.32 These are detailed in Table 6.10.

¹⁵² <https://infrastructure.planninginspectorate.gov.uk/projects/south-west/> (Accessed August 2023)

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Table 6.10 NSIPs in the South West region

Project	Developer	Stage
Test Case	Horizon	Pre-Examination
Hinkley Point C New Nuclear Power Station Material Change 1	NNB Generation Company (HPC) Limited	Pre Application
A358 Taunton to Southfields	Highways England	Pre Application
Bere Alston to Tavistock Railway Reinstatement and Associated Trails	Devon County Council	Pre Application
M5 Junction 10 Improvements Scheme	Gloucestershire County Council	Pre Application
Avon Power Station 950 MW output	Scottish Power	Pre Application
Seabank 3 CCGT	SSE plc	Pre Application
The West Somerset Tidal Lagoon	Longbay Seapower	Pre Application
A417 Missing Link	Highways England	Decided
Portishead Branch Line - MetroWest Phase 1	North Somerset Council	Decided
A303 Stonehenge	Highways England	Decided
A303 Sparkford to Ilchester Dualling	Highways England	Decided
Hinkley Point C Connection	National Grid	Decided
A30 Chiverton to Carland Cross Scheme	Highways England	Decided
A30 Temple to Higher Carblake Improvement	Cornwall Council	Decided
Hinkley Point C New Nuclear Power Station	NNB Generation Company Limited	Decided

- 6.5.33 The majority of NSIPs within the area are road or rail infrastructure schemes that would not be considered likely to provide pressures on water resources in the Wessex Water area. Most of the proposed NSIP schemes would not be in close proximity to any of the preferred options such that no significant cumulative effects are anticipated at this stage. There are some schemes at pre-application stage that could impact water resource/quality (Seabank 3 CCGT, Avon Power Station 950 MW, both within the Bristol Water area, and the West Somerset Tidal Lagoon). Although these schemes may have impacts on water resource/quality at this early stage in the development of these schemes a cumulative effects assessment is premature. However, the impacts on water resources and quality will be considered during the examination into the projects (if they proceed to that stage) and no additional cumulative effects are considered likely at this stage of preparation of the Revised Draft WRMP. Where projects have been decided (such as Hinkley Point C) the effects on water demands will have been assessed and taken into account.
- 6.5.34 Nevertheless, the water demands of all of these projects (and any future NSIPs in the south west) should be considered in their applications for development consent and if

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significant demand is forecast, this should be considered by Wessex Water during monitoring of the WRMP.

6.6 Mitigation and Enhancement

6.6.1 The potential effects of the Revised Draft WRMP24 are described in the sections above. In some cases, there is an opportunity to reduce some of the potential negative effects identified, subject to further investigation. The detail of this mitigation needs to be considered during the planning phases of each of the individual measures if and when they are taken forward for implementation. This should then be consolidated into a Construction Environmental Management Plan (CEMP) for the scheme, noting that all works should be carried out in accordance with relevant Construction Design Management (CDM) Regulations 2015.

Species Specific Measures and Biodiversity

6.6.2 Most species-specific avoidance or mitigation measures can only be determined at the scheme level, following scheme-specific surveys, and 'best-practice' mitigation for a species will vary according to a range of factors that cannot be determined at this stage. The CEMP should include measures to minimise disturbance to biodiversity during the construction phase, for example:

- scheme design should aim to minimise the environmental effects by 'designing to avoid' potential habitat features that may be important e.g. those used by species that are European site interest features when outside the site boundary (e.g. linear features such as hedges or stream corridors; large areas of scrub or woodland; mature trees; etc.) through scheme-specific routing studies;
- the works programme and requirements for each measure should be determined at the earliest opportunity to allow investigation schemes, surveys and mitigation to be appropriately scheduled and to provide sufficient time for consultations with NE;
- night-time working, or working around dusk / dawn, should be avoided to reduce the likelihood of negative effects on nocturnal species;
- any lighting required (either temporary or permanent) will be designed with an ecologist to ensure that potential 'displacement' effects on nocturnal animals, particularly designated bat species, are avoided;
- all materials will be securely stored away from migratory routes / foraging areas that may be used by designated species;
- all excavations will have ramps or battered ends to prevent species becoming trapped; and
- pipe-caps must be installed overnight to prevent species entering and becoming trapped in any laid pipe-work.

6.6.3 Specific enhancement measures will relate to the potential for the creation of new habitats associated with biodiversity net gain. Whilst these have been assessed and identified as part of the BNG assessment on a scheme specific basis using existing GIS information,

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further BNG assessment based on detailed and field-based data would provide a comprehensive BNG calculation of the revised preferred options. This would identify on- and off-site areas for each revised preferred option to achieve BNG. Further investigation may also allow identification of 'super' BNG sites that can deliver BNG for several preferred options as part of a wider suite of corporate biodiversity actions linked to Wessex Water's management of its land holdings.

Scheme Design and Planning

- 6.6.4 All measures will be subject to project-level environmental assessment, which will include assessments of their potential to affect European sites during their construction or operation. These assessments should consider or identify (inter alia):
- opportunities for avoiding potential effects on designated sites through design (e.g. alternative pipeline routes; micro-siting; etc) e.g. 70.01 and 70.06;
 - construction measures that need to be incorporated into scheme design and or planning to avoid or mitigate potential effects – for example, ensuring that sufficient space is available for pollution prevention measures to be installed, such as sediment traps; and
 - operational regimes required to ensure no adverse effects occur (e.g. maintain minimal flows – although note that these measures can only be identified through detailed investigation schemes).

Pollution Prevention

- 1.1.3 There is a substantial body of general construction good-practice which is applicable to all of the proposed measures and can be relied on (at this level) to prevent significant or adverse effects on a European site occurring as a result of construction site-derived pollutants. The following guidance documents detail the current industry best-practices in construction that are relevant to the proposed schemes:
- DEFRA's Pollution prevention for businesses (<https://www.gov.uk/guidance/pollution-prevention-for-businesses>);
 - Venables R. et al. (2000) Environmental Handbook for Building and Civil Engineering Projects. 2nd Edition. Construction Industry Research and Information Association (CIRIA), London.
- 6.6.5 The best-practice procedures and measures detailed in these documents should be followed for all construction works derived from the Revised Draft WRMP24 as a minimum standard, unless scheme-specific investigations identify additional measures and / or more appropriate non-standard approaches for dealing with potential site-derived pollutants.
- 6.6.6 Care should also be taken during construction regarding the potential for contaminants such as silt, concrete or fuel oil to pollute water courses via surface run off. This can be mitigated by undertaking all construction activities in accordance with relevant best practice pollution prevention guidance. Pollution Incident Control Management Plans should be developed to limit adverse effects arising from pollution events. Such measures have been highlighted for options including 59.01, 70.01 and 70.06.

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- 6.6.7 With regard to the potential for effects on air quality, the following measures should be considered for inclusion within the CEMP, with particular regard to 70.01 and 70.06:
- Wessex Water should consider the use of low emission plant, air quality monitoring and preparation of a Dust Management Plan;
 - a Construction Traffic Management Plan (CTMP) could be prepared for each preferred supply option to manage the traffic impacts associated with construction which would include measures to mitigate air quality effects including routing of traffic to avoid sensitive receptors and the timing of HGV movements to avoid peak traffic hours;
 - low emission/electric vehicles should be used during the construction and operational phases where possible, consistent with the Water UK Net Zero 2030 Route Map.

Effects on Human Health and Social and Economic Well-being

- 6.6.8 With regard to the potential for effect on health, social and economic well-being, Wessex Water could consider encouraging all its contractors are enrolled in the Considerate Constructors Scheme, a voluntary scheme which commits those contractors in the Scheme to be considerate and good neighbours, as well as clean, respectful, safe, environmentally conscious, responsible and accountable. The following measures should be considered for inclusion within the CEMP, with particular regard to the effects from 70.01 and 70.06:
- care should be taken to avoid works near to the most sensitive health receptors In the development of detailed designs for pipeline routes;
 - routing of traffic to avoid sensitive receptors and the timing and phasing of HGV movements to avoid peak traffic hours;
 - construction activities should be undertaken so as to minimise short term adverse effects on recreational areas, such as footpaths, and on landscape and biodiversity.
- 6.6.9 To maximise economic benefits in the Wessex Water area, it is recommended that, where possible, work is carried out by local firms and contractors or by those with a policy for training and skills development that could help contribute to the local economy and meet employment needs. Where possible, Wessex Water should seek to use locally-sourced materials.

Effects on Climate Change and Resource Use

- 6.6.10 To help Wessex Water respond to the challenges of climate change, noting that greenhouse gas emissions are a likely significant effect identified by the SEA, a Carbon Management Plan could be developed. This should be consistent with Wessex Water's Route Map to Net Zero (and the commitment to achieve net zero emissions by 2030, and full decarbonisation by 2040) and could include:
- the provision of on-site renewables during both the construction and operational phases of the sub-options;

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- adoption of high quality, sustainable design principles to maximise energy efficiency in new infrastructure;
 - use of low emission and electric vehicles in construction and operational fleets;
 - use of low emission plant during construction;
 - provision of enhanced carbon sequestration as part of biodiversity enhancement measures; and
 - offsetting of all residual carbon emissions.
- 6.6.11 Design measures should be adopted to ensure the long-term resilience of infrastructure to the effects of climate change. Measures may include, for example, the provision/enhancement of natural flood management measures as part of wider biodiversity enhancement and habitat creation.
- 6.6.12 Where significant raw materials are required for options, this can be mitigated by utilising recycled and locally sourced materials. Construction and operational wastes should also be reused/recycled where appropriate.

Effects on Cultural Heritage and Landscape

- 6.6.13 The potential for adverse impacts of the settings of cultural heritage assets should be considered early in the design process and any adverse effects minimised, for example through micrositing/ alternative pipeline routes to avoid designated sites. Further measures, for consideration within the CEMP could include:
- careful consideration being given to the presence of heritage assets when finalising proposals for pipeline routing;
 - where required, a programme of trial trenching and archaeological recording should be undertaken at development sites, with results disseminated;
 - new above-ground infrastructure should be screened, where possible and informed by informed by a heritage appraisal/assessment, to minimise effects on the settings of heritage assets;
 - consideration should be given to enhancing the significance of, and access to, heritage assets.
- 6.6.14 Proposed Revised Draft WRMP24 schemes could have a negative effect on landscape if new infrastructure is required, particularly where development cannot be located on previously developed land and/or where schemes are located within landscapes recognised for their importance and special qualities (AONBs). In order to minimise such effects, new structures could be located close to existing structures or hedgerows and trees to provide some screening with the potential to utilise local building styles or incorporate landscaping schemes (e.g. tree/ hedge planting). Further measures, for consideration within the CEMP could include:
- where required, proposals should be accompanied by a lighting strategy that is designed to minimise outward glows;

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- new above ground infrastructure should adopt high quality design principles where possible (for example, the use of local materials);
- proposals should be accompanied by a landscape mitigation plan, informed by a landscape and visual assessment (where required).

6.7 Conclusions

- 6.7.1 Wessex Water's baseline supply-demand balance in the Revised Draft WRMP24 shows that as a consequence of further regulatory planning requirements, notably changes to licence reductions in 2035 and leakage and efficiency targets, that the deficit is forecast to be over 130 MI/d by 2079/80 under the dry year critical period scenario.
- 6.7.2 The forecast deficit will be addressed through the implementation of the supply side, demand management and leakage options that comprise the preferred programme of WRMP24 options. Following the application of the decision-making tools and testing to the 86 feasible options, Wessex Water identified a total of 11 revised preferred options comprising of eight supply options, and three demand management option. Of this total, seven were previously included in the Draft WRMP24.
- 6.7.3 Overall, the Revised Draft WRMP24 is considered to have significant positive operational effect against climate change resilience (SEA Objective 7), economic and social wellbeing (SEA Objective 8), human health (SEA Objective 9) and water resources (SEA Objective 10) as the additional design capacity (water) they would provide would help to ensure a continual supply of clean drinking water, supporting economic/population growth, generating a positive effect on human health and increasing adaptability to the effects of climate change.
- 6.7.4 All options included in the Revised Draft WRMP24 are considered to be WFD compliant (both individually and cumulatively).
- 6.7.5 The HRA has concluded that options could either be screened out as not having any likely significant effects, or would not have adverse effects on the integrity of European sites following the implementation of established scheme-level mitigation.
- 6.7.6 Where negative effects have been identified, generally, these are expected to be either minor or moderate only, although uncertainties remain. The exception to this is in respect of air quality (SEA Objective 5), climate change (SEA Objective 6) waste and materials (SEA Objective 11), historic environment (SEA Objective 12) and landscape (SEA Objective 13) where significant negative effects have been identified during construction. With respect to SEA objectives 5, 6 and 11, these effects reflect the emissions to air, energy and resource use associated with the implementation of the water management measures which is to a large extent unavoidable (although effects may be reduced at the project stage through, for example, the use of renewable energy and sustainably sourced construction materials). With respect to the historic environment (SEA Objective 12) further work is required on pipeline routes to avoid designated sites. With respect to landscape (SEA Objective 13), further work is required to ensure the sympathetic and planning policy compliant design and screening of new above ground infrastructure when sited in AONBs.

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- 6.7.7 Detailed mitigation and enhancement measures have been identified to help avoid, minimise, reduce or mitigate effects where identified.
- 6.7.8 When compared to the assessment of effects the reasonable alternative plan, Wessex Water's Revised Draft WRMP24 performs better against the SEA objectives than the reasonable alternative options, and does not have a WFD non-compliance risk. Overall, it is considered to provide additional resilience to respond to a greater range of future scenarios and best able to support future population, household and economic growth within the Wessex Water region.

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7. Next Steps and Proposals for Monitoring

7.1 Next Steps

- 7.1.1 Wessex Water is submitting the Revised Draft WRMP24 and this Environmental Report to the Secretary of State. Once directed to do so, Wessex Water will publish and implement the Final WRMP24 accordingly.
- 7.1.2 In conjunction with publishing the final WRMP24, a Post Adoption Statement will also be issued (to meet the requirements of SEA regulation 16 (4)). This will set out the results of the consultation and SEA processes and the extent to which the findings of the SEA have been accommodated in the final plan.

7.2 How Environmental Effects will be Considered During Plan Implementation

- 7.2.1 Once the Final WRMP24 has been published, the selected schemes for water resource management will need to be implemented through specific projects. As part of this process, each project may be subject to further assessment to understand and manage its potential environmental and social impacts. These assessments, which may include HRA and EIA, will take account of the issues discussed in this report but will also be informed by the greater detail available as the work progresses about construction techniques, building materials, and agreed locations and routes.

7.3 Monitoring the Effects of the WRMP

- 7.3.1 Subject to the approval of the Secretary of State, Wessex Water will implement its WRMP24. If the WRMP24 is implemented and specific options deployed, its effects on the environment and people will need to be taken into account. In this regard, it is a requirement of the SEA Regulations to establish how the significant effects of the WRMP24 will be monitored. Monitoring can help to answer questions such as:
- Were the SEA predictions of effects accurate?
 - Are mitigation measures performing as well as expected?
 - Are there any adverse effects? Are these within acceptable limits, or is remedial action desirable?
- 7.3.2 It is not necessary to monitor everything or monitor an effect indefinitely. Instead monitoring should be focussed on:
- significant effects that may give rise to irreversible damage, with a view to identifying trends before such damage is caused; and

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- significant effects where there was uncertainty in the SEA and where monitoring would enable preventative or mitigation measures to be undertaken.

- 7.3.3 Wessex Water expects to monitor the effects of the WRMP24 alongside the other impacts of its operations, and as such, is likely to rely on existing sources of information that are collected either by Wessex Water or by other relevant organisations such as the EA or NE. For example, Wessex Water already collects certain data for an annual review process (the Annual Performance Report) that is submitted to the Office of Water Services (Ofwat) and their own environmental reporting.
- 7.3.4 Table 7.1 indicates some of the issues currently monitored or which could be monitored in future, and how they relate to the SEA objectives used in this SEA of the Revised Draft WRMP24. This list is provisional and indicative only; monitoring proposals, including timescales and frequency, will be considered further and a final monitoring framework that satisfies the requirements of the SEA Regulation will be presented in the Post Adoption Statement.

Table 7.1 Potential Indicators for Monitoring Effects

SEA Objective	Indicator	Source of Information	Indicative Reporting Frequency	Commentary
1. To protect, restore and enhance biodiversity, including designated sites of nature conservation interest, protected habitats and species, enhance ecosystem services and resilience and deliver a net biodiversity gain.	Condition of specific protected sites (e.g. SACs, SPAs, SSSIs)	Wessex Water (WW), Environment Agency, Natural England (NE)	Annual (subject to data availability)	Additionally, open communication between EA, NE and WW results in up-to-date information and identification of any potential issues.
	Biological monitoring (macroinvertebrates, macrophytes, fisheries, bird surveys)	WW, EA, NE	Annual (subject to data availability)	Monitoring/investigations support this indicator.
2. To protect and enhance soil quantity, quality and functionality and geodiversity and contribute to the sustainable use of land.	Area of previously undeveloped land used during construction	WW	Annual	WW could record the area of previously undeveloped land that is built on as a result of the WRMP24 scheme, linked to biodiversity net gain/resilience assessment completed.

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SEA Objective	Indicator	Source of Information	Indicative Reporting Frequency	Commentary
	Condition of sites designated for geological interest (e.g. geological SSSIs) on water industry land holdings	WW, NE	Annual (subject to data availability)	Previous studies may also be used to inform monitoring and assessment.
	Number of new/extended water resource infrastructure sites where development has included remediation of a previously developed site to reduce any pollutant risks	WW	Annual	WW could record the area of brownfield site that is built on as a result of the WRMP24 scheme.
3. To maintain, protect and enhance surface and ground water resource levels, flows and quality	River flows, river levels, lake and reservoir levels. Groundwater levels, recharge characteristics and abstracted groundwater quality	WW, EA	Annual (subject to data availability)	Previous studies may also be used to inform monitoring and assessment. e.g. WINEP, plus additional studies and investigations being commissioned
	Water quality of surface and ground water.	WW, EA	Annual (subject to data availability)	Previous studies may also be used to inform monitoring and assessment.
4. To reduce or manage flood risk.	Number of properties that experience internal/external flooding	WW, EA	Annual	WW report these data to Ofwat as part of the statutory returns process.
5. To minimise emissions of pollutant gases and particulates and enhance air quality.	Number of vehicle movements/distance travelled	WW	Annual	WW could consider recording the number of vehicle movements and distance travelled as an indicator of air quality impacts during implementation.
6. To reduce embodied and operational greenhouse gas emissions.	Quantity of greenhouse gas emissions per megalitre of water supplied.	WW	Annual	WW energy managers can use company data, and guidance from the UKWIR greenhouse gas workbook and BEIS (Department for Business, Energy & Industrial Strategy) conversion factors to derive this information. Potential to supplement with any monitoring information gathered in support of WW's Routemap to Net Zero Carbon Emissions

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SEA Objective	Indicator	Source of Information	Indicative Reporting Frequency	Commentary
	Energy use used in the operation of options.	WW	Annual	WW should hold and record energy consumption data e.g. via accounts / invoices.
	Renewable energy generated or purchased.	WW	Annual	WW should record renewable energy generation data, in addition to data on renewable energy purchased e.g. via accounts / invoices.
7. To adapt and improve resilience to the threats of climate change.	Number of properties that experience internal/external flooding	WW, EA, NRW	Annual	WW measure the number of incidents per year and keep a record of all flooding incidents per year.
8. To promote a sustainable economy and maintain and enhance the economic and social well-being of local communities.	Number of WW sites with public access which provide sporting, recreational and leisure resources and number of visits per year.	WW	Annual	WW hold information on the number of annual visitors to sites where specific visitor facilities are provided. These could be analysed to determine effects of operation on visitor use.
	Planned residential new development (informing predicted growth forecast to target catchments requiring investigations for potential future capacity constraints).	WW		WW examine information on planned growth and forecasts across LPA within the area.
9. To protect and enhance human health and well-being.	Compliance with drinking water standards at customers' taps (%).	WW	Annual	WW reports these data to Ofwat as part of the statutory returns process (Annual Performance Report) and to the Drinking Water Inspectorate.
	Compliance with water quality standards under the EC Bathing Waters Directive.	EA	Annual	EA monitors the compliance of bathing waters and report this annually.
	Number of nuisance-related complaints e.g. noise, dust.	WW	Annual	WW could record the number of nuisance-related complaints made in relation to implementation of the WRMP.

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SEA Objective	Indicator	Source of Information	Indicative Reporting Frequency	Commentary
	Pollution and flooding Incidents Sewer collapses and blockages	WW, Environment Agency	Annual	WW measure the number of pollution incidents per year and keep a record of all flooding incidents per year and maintain a list of intermittent discharges.
10. To promote and enhance the sustainable and efficient use of resilient water resources.	Leakage Water saved through demand management/ water efficiency measures	WW	Annual	WW report these data to Ofwat as part of the annual returns process.
11. To minimise waste, promote resource efficiency and move towards a circular economy.	Amount of recycled / reused materials used	WW (contractors/consultants)	Annual	Information on the use of recycled / reused materials should be held by construction managers and accounts (contractors / consultants accounts, waste or procurement records).
	Proportion of waste sent to landfill	WW (services data)	Annual	Information on waste disposal to landfill should be held by WW.
	Chemical use in water treatment	WW (services data)	Annual	Information (quantities, composition) on chemical use should be held in accounts.
12. To conserve and enhance the historic environment including the significance of heritage assets and their settings and archaeologically important sites.	Loss/harm or discovery/conservation/enhancement of built, cultural and natural heritage features. Improved access, understanding and enjoyment of heritage (where relevant to WWSL WRMP24)	WW, Historic England	Annual	Historic England monitor the condition of all statutorily protected monuments.
13. To conserve, protect and enhance landscape, seascape and townscape character and visual amenity.	Loss or damage to landscape character and features of designated sites.	WW	Annual	WW could record the number and size of infrastructure built within designated landscape sites.

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Appendix A

Quality Assurance Checklist

The Government’s Guidance on SEA¹⁵³ contains a quality assurance checklist to help ensure that the requirements of the SEA Regulations are met. Those requirements relevant to the scoping stage of the SEA of draft WRMP24 have been set out below.

Quality Assurance Checklist	
Objectives and Context	
The plan's or programme's purpose and objectives are made clear.	The purpose and objectives of the draft WRMP24 is set out in Section 1.3 of this Environmental Report.
Environmental issues and constraints, including international and EC environmental protection objectives, are considered in developing objectives and targets.	Key environmental issues identified through a review of relevant plans and programmes (see Section 2 and Appendix C of this report) and analysis of baseline conditions (see Section 3) have informed the development of the assessment framework presented in Section 4.3.
SEA objectives, where used, are clearly set out and linked to indicators and targets where appropriate.	SEA objectives and guide questions are set out in Section 4.3 of this report. Quantitative and qualitative thresholds of effects provide values for neutral, minor, moderate and significant effects (Appendix D).
Links with other related plans, programmes and policies are identified and explained.	Links are identified in Section 2 and Appendix C.
Conflicts that exist between SEA objectives, between SEA and plan objectives and between SEA objectives and other plan objectives are identified and described.	The relationships between the SEA, WRMP24 and other plan objectives have been identified in the review of plans and programmes included in Appendix C.
Scoping	
Consultation Bodies are consulted in appropriate ways and at appropriate times on the content and scope of the Environmental Report.	The SEA Scoping Report was consulted upon and responses to this are included in this Environmental Report (see Appendix B).
The assessment focuses on significant issues.	The scope of the assessment reflects the geographic extent of the WRMP24 area and provides a comprehensive approach to assessment (reflecting the large number of interactions dependent on the continued supply of water). This enables the assessment to determine which impacts will be considered significant.
Technical, procedural and other difficulties encountered are discussed; assumptions and uncertainties are made explicit.	General difficulties, limitations and assumptions are set out in Section 4.5 of this report. Baseline data limitations are discussed in Section 3.3.
Reasons are given for eliminating issues from further consideration.	The proposed scope of the assessment is set out in Section 4.2. All SEA topics have been scoped in to the assessment.

¹⁵³ Office of the Deputy Prime Minister (2005) *A Practical Guide to the Strategic Environmental Assessment Directive*.

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Quality Assurance Checklist	
Alternatives	
Realistic alternatives are considered for key issues, and the reasons for choosing them are documented.	All options were assessed as set out in Section 5 and Appendix E of this report.
Alternatives include 'do minimum' and/or 'business as usual' scenarios wherever relevant.	A 'do minimum' and/or 'business as usual' scenario is not appropriate for the draft WRMP due to the need to provide sufficient water to customers.
The environmental effects (both adverse and beneficial) of each alternative are identified and compared.	This is included in Section 5 and 6 and Appendix E of this report.
Inconsistencies between the alternatives and other relevant plans, programmes or policies are identified and explained.	No inconsistencies were identified.
Reasons are given for selection or elimination of alternatives.	This is set out in Section 1.3, and as relevant of this report.
Baseline Information	
Relevant aspects of the current state of the environment and their likely evolution without the plan or programme are described.	Section 3 of this report characterises the current environmental baseline conditions, along with how these are likely to change in the future.
Environmental characteristics of areas likely to be significantly affected are described, including areas wider than the physical boundary of the plan area where it is likely to be affected by the plan.	The environmental characteristics of the WRMP24 area are described in Section 3 of this report.
Difficulties such as deficiencies in information or methods are explained.	Baseline data limitations are discussed in Section 3.12. Further difficulties and limitations are set out in Section 4.5.
Prediction and Evaluation of Likely Significant Environmental Effects	
Effects identified include the types listed in the Directive (biodiversity, population, human health, fauna, flora, soil, water, air, climate factors, material assets, cultural heritage and landscape), as relevant; other likely environmental effects are also covered, as appropriate.	The potential effects of the options are identified in Section 5 and 6 and Appendix E and F.
Both positive and negative effects are considered, and the duration of effects (short, medium or long-term) is addressed.	The nature and duration of potential effects has been set out in the detailed assessment matrices contained in Appendix E and F of this report.
Likely secondary, cumulative and synergistic effects are identified where practicable.	Information on secondary, cumulative and synergistic effects is set out in Section 6.5).
Inter-relationships between effects are considered where practicable.	These relationships are identified where appropriate in the detailed assessment matrices contained in Appendix E and F of this report.
The prediction and evaluation of effects makes use of relevant accepted standards, regulations, and thresholds.	Relevant standards have been used where appropriate in undertaking the assessment.
Methods used to evaluate the effects are described.	Information on the methods used for evaluation of potential effects is included in Section 4 and in the detailed assessment matrices contained in Appendix E and F of this report. The definitions of significance used in the assessment are set out in Appendix D.

Quality Assurance Checklist	
Mitigation Measures	
Measures envisaged to prevent, reduce and offset any significant adverse effects of implementing the plan or programme are indicated.	Mitigation measures for potential negative effects are set out in Section 6.6 and in the commentary to the matrices in Appendix E and F.
Issues to be taken into account in project consents are identified.	Issues to be taken into account in project consents, where relevant are included in Section 6.6 and in the commentary to the matrices in Appendix E and F.
The Environmental Report	
Is clear and concise in its layout and presentation.	We believe the report is clear and concise, reflective of the information in the draft WRMP.
Uses simple, clear language and avoids or explains technical terms.	The report uses accessible language wherever possible.
Uses maps and other illustrations where appropriate.	Maps and illustrations have been utilised in the report.
Explains the methodology used.	The method used is set out in the report in Section 4.
Explains who was consulted and what methods of consultation were used.	Appendix B of this report outlines the consultation that has been carried out to-date.
Identifies sources of information, including expert judgement and matters of opinion.	Sources of information are included throughout the report.
Contains a non-technical summary covering the overall approach to the SEA, the objectives of the plan, the main options considered, and any changes to the plan resulting from the SEA.	A Non-Technical Summary has been included as part of the report.
Consultation	
The SEA is consulted on as an integral part of the plan-making process.	The previously issued SEA Scoping Report was consulted upon and responses are included in this Environmental Report (see Appendix B).
Consultation Bodies and the public likely to be affected by, or having an interest in, the plan or programme are consulted in ways and at times which give them an early and effective opportunity within appropriate time frames to express their opinions on the Draft Plan and Environmental Report.	Consultation on the Draft WRMP and this Environmental Report will be undertaken by the water company.
Decision-making and Information on the Decision	
The Environmental Report and the opinions of those consulted are taken into account in finalising and adopting the plan or programme.	This will be incorporated following consultation on draft WRMP24 and Environmental Report.
An explanation is given of how they have been taken into account.	This will be provided following consultation on the draft WRMP24 and Environmental Report.
Reasons are given for choosing the plan or programme as adopted, in the light of other reasonable alternatives considered.	This will be set out following consultation on the draft WRMP24 and Environmental Report.
Monitoring Measures	
Measures proposed for monitoring are clear, practicable and linked to the indicators and objectives used in the SEA.	The report sets out potential monitoring measures that could be used in Section 7.4.
Monitoring is used, where appropriate, during implementation of the plan or programme to make good deficiencies in baseline information in the SEA.	The suggestions for monitoring are included in Section 7.4 of the report.

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Monitoring enables unforeseen adverse effects to be identified at an early stage. (These effects may include predictions which prove to be incorrect.)	The suggestions for monitoring made in Section 7.4 are for the water company to act on, with monitoring taking place following implementation of the WRMP24.
Proposals are made for action in response to significant adverse effects.	Mitigation methods are outlined for the preferred options in Section 6.6 of this report.

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Appendix B

Schedule of Consultation Responses

Consultation on WWSL's WRMP24s environmental assessment methodologies took place between the 4th April to 10th May 2022.

To support the consultation, a series of method statements for the proposed approaches to undertaking the environmental assessments of the respective plans were issued and comments invited. These were for:

- Strategic Environmental Assessment (SEA) – SEA Scoping Report
- Habitats Regulations Assessment (HRA) – HRA Method Statement
- Water Framework Directive (WFD) Assessment – WFD Assessment Methodology Statement

The method statements were issued to Cadw, the Environment Agency, Historic England, Natural England, Natural Resources Wales and Welsh Government.

Responses to the SEA scoping report were received, with comments, from the Environment Agency and Natural England. Cadw did respond, without comments on the report itself, to confirm that they saw no issues that would have an effect on designated historic assets in Wales.

Tables B.1 & B.2 present a summary of these responses.

Consultation on the Draft WRMP24 and accompanying documents including the Environmental Report took place between 28th November to 20th February.

Responses were received from the Environment Agency, Natural England and Historic England.

Tables B.3, B.4 and B.5 present a summary of these responses.

Wessex Water has prepared a Statement of Response to all the representations received. It is available here: https://corporate.wessexwater.co.uk/media/2bhjkpli/wrmp24_statement-of-response_redacted.pdf

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Table B.1 Responses to the Environment Agency's comments on the SEA Scoping Report

Consultation Comments	Section	Consultee Response	Response/Action
EA1	1.1.3	<p><u>Has the water company correctly determined the requirement to carry out an SEA?</u></p> <p>Setting this out in a flow chart form to show the screening determination would be helpful.</p>	<p>Comment noted.</p> <p>A flow chart, along with a description of how the WRMP's fit into the criteria of the SEA Regulations, outlining the information described in section 1.1.3 has been included in Section 1.4 of the Environmental Report.</p>
EA2	Figure 3.1 & Section 4.2.5	<p><u>Does the Scoping Report outline an appropriate study area and baseline (including current and future baseline)?</u></p> <p>No map is included in the report to show the Wessex WRMP study area, this would be useful for those not familiar with the area. Each topic includes relevant baseline, with a future trends section. Reference made to baseline limitations/uncertainties, reflecting in particular the COVID 19 pandemic and its impact on baseline trends. Reference is made to applying a 10km buffer to study area for European designated sites e.g. to ensure any cross boundary effects are addressed, but this seems to apply to European sites only? Are buffers to be applied to other receptors e.g. where hydrologically connected?</p>	<p>Comments noted.</p> <p>The area supplied by Wessex Water is displayed in Figure 3.1, with European sites in the area highlighted. A map outlining the Wessex Water WRMP has been added to Section 1 of the Environmental Report (Figure 1.1).</p> <p>Proximity distances were considered as part of the determination of direct and indirect effects on other designated receptors e.g. air quality, cultural heritage and landscape. These have considered varying distances reflecting the nature of effects and the sensitivities of the differing receptors.</p>
EA3	N/A	<p><u>Does the Scoping Report identify key issues and provide those scoped in/out?</u></p> <p>HRA and WFD assessments will be carried out and will be used to inform the SEA. 'Key issues' have been identified under each baseline heading and summarised at the end of chapter 3 but, a presentation style point to note, the majority of the issues are written in the style of actions as result of the</p>	<p>Comments noted.</p> <p>Opportunities identified will are not included in the scoping report.</p> <p>The scoping report states that ' , all SEA topics identified by Schedule 2 of the SEA Regulations have been scoped in for assessment' , illustrating</p>

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Consultation Comments	Section	Consultee Response	Response/Action
		issues e.g. 'The need to....'. Would also be good to distinguish between issues and opportunities identified? Chapter 4 states that all topics have been scoped into the assessment (although not clear if any sub topic issues could have been screened out?).	that nothing has been screened out of the assessment.
EA4	2.2	<p><u>Does the Scoping Report include a PPP review? Are there any PPPs that we would expect to be covered that haven't been? Has the outcome of the PPP review been used to inform assessment methodologies and focus?</u></p> <p>Yes included - many body of text refers to the PPP review and includes the comprehensive list of plans reviewed, appendix B holds further detail. It would have been useful to summarise some key conclusions in the main body of the report too to show how this has influenced the objectives/assessment framework. Re sub regional plans, it would be good to highlight which RBMPs, FRMPs etc were reviewed; most listed here were 'various' (although specific plans were referred to more in baseline chapter).</p>	<p>Comment noted.</p> <p>Section 2.2 states that sub-regional and local level plans and programmes have been reviewed in preparation of the scoping report. A list of all individual local plans will not be included at this stage.</p>
EA5	4.4 & 3.2.15	<p><u>Is it clear how the SEA will be used to influence the development of the plan being produced, how has sustainability been used to influence plan development to date?</u></p> <p>As part of the assessment methodology set out in chapter 4, it indicates the 'feasible options assessment' will use the 13 SEA objectives and 'findings available to inform the screening and refinement of options (for the WRMP)'. Limited info included on how the SEA will be used to influence the plan at subsequent stages of the assessment. There was reference to the Wessex Water Sustainability Vision (2016) in the baseline chapter, but no further details</p>	<p>Comments noted.</p> <p>More information on how the SEA will be used to influence stages of the assessment following the feasible option assessment will be included in the amended version of the text related to the methodology presented in the Environmental Report. In particular, Section 5.4 of the Environmental Report outlines how the SEA findings for the revised feasible options have been used as inputs into the following key decision points:</p> <ul style="list-style-type: none"> Multi-Criteria Analysis (MCA), undertaken in advance of the selection of options;

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Consultation Comments	Section	Consultee Response	Response/Action
		<p>on content and how this is being used to influence development of the plan, or inform the SEA assessment framework?</p>	<ul style="list-style-type: none"> • scenario testing of the constrained options; and • selection of the preferred programme of options. <p>Two key drivers from the Wessex Water Sustainability Vision 2016 are set out in section 3.2.15; have a biodiversity-rich landholding, while contributing to the wider region's biodiversity; and ensure the environmental integrity and biodiversity of river and groundwater catchments is in good or excellent condition.</p>
EA6	N/A	<p><u>Does the Scoping Report set out an SEA assessment methodology that is appropriate and describes how alternatives will be assessed and considered?</u></p> <p>Yes assessment methodology set out in main body of text, outlining the objectives (and prompt questions) for each topic, how matrices will be used, how to determine significance, timescales for effects, cumulative effects etc. There is reference to 'each SEA' implying there is more than one being carried out? Important to also consider the interrelationships between SEA topics in the SEA assessment framework. Consider use of colour palettes for matrices to ensure colours are clearly distinguishable from each other. Reasonable alternatives assessment outlined in report, stating that the 'feasible options' will be the reasonable alternatives to the preferred option.</p>	<p>Comments noted.</p> <p>The reference to 'each SEA' is a typing error. This will be corrected in the subsequent Environmental Report.</p>

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Table B.2 Responses to Natural England's comments on the SEA Scoping Report

Consultation Comments	Section	Consultee Response	Response/Action
NE1	N/A	<p>Generally Natural England consider that the scoping document has highlighted appropriate SEA objectives and proposed sensible baseline evidence gathering.</p> <p>However, we advise that there may be some gaps between the proposed 'baseline key issues', 'SEA objectives' and 'Proposed Guide Questions', these are summarised below by SEA Topic as presented throughout the Water Resource Management Plan SEA Scoping document:</p>	Comment noted.
NE2	3.2.13	<p><u>Biodiversity, flora and fauna</u></p> <p>We acknowledge that a thorough list of 'policies, plans and programme key messages' has been included in section 3.1 for biodiversity. However, whilst we acknowledge that Wessex Water have considered the requirements of the Water Resource Management Plan linked to the Environment Act 2021, we advise that this should also be referenced in the table of Appendix B of the Water Resource Management Plan SEA Scoping Report.</p>	<p>Comment noted.</p> <p>The HM Government (2021) Environment Act will be included in Appendix B and the Review of Plans and Programmes in the Environmental Report.</p>
NE3	Table 4.2	<p><u>Biodiversity, flora and fauna</u></p> <p>There seems to be some disparity between the baseline key issues and Proposed Guideline Questions. For example, the baseline key issues mention the need to "avoid activities likely to cause irreversible damage to natural heritage" and "take opportunities to improve connectivity between fragmented habitats to create functioning habitat corridors" but these are not translated into the Proposed Guideline Questions. We advise that</p>	<p>Comment noted.</p> <p>The Proposed Guideline Questions will be reviewed prior undertaking the assessment and inclusion of the findings in the Environmental Report to ensure full reflection of the baseline key issues.</p> <p>The following additional questions will be included:</p>

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Consultation Comments	Section	Consultee Response	Response/Action
		<p>some of the questions are expanded. For example: “Will it protect, restore or enhance natural capital and ecosystem services?” is a good a question to include, but we would also like to see its counterpart, perhaps: “Will the activity result in any permanent losses to natural capital or irreplaceable habitats (e.g. Ancient Woodland)?”. Also: “Will it maintain and enhance the green infrastructure network and the biodiversity it supports?” should include the restoration of fragmented habitats to reflect the baseline key issue.</p>	<ul style="list-style-type: none"> • <i>Will the activity result in any permanent losses to natural capital or irreplaceable habitats (e.g. Ancient Woodland)?</i>. <p>However, the suggested amendment to the second identified assessment question “Will it maintain and enhance the green infrastructure network and the biodiversity it supports?” has not been made as it anticipates the nature of the option mitigation and enhancement, already captured within the scope of the question.</p>
NE4	N/A	<p><u>Biodiversity, flora and fauna</u> Natural England would like to reiterate to Wessex Water that the conservation objectives of European sites and interest features of Sites of Special Scientific Interest are to be captured within the SEA. Please refer to our Designated Sites View System for this information: Site Search (naturalengland.org.uk)</p>	Comment noted.
NE5		<p><u>Soil, geology and land use</u> Impacts from new water resource options including SROs should be considered in light of the Government’s policy for the protection of the best and most versatile (BMV) agricultural land as set out in paragraph 170 of the NPPF. We also recommend that soils should be considered in the context of the sustainable use of land and the ecosystem services they provide as a natural resource, as also highlighted in paragraph 170 of the NPPF.</p>	<p>Comments noted.</p> <p>The assessment framework includes the following guideline questions that will address this:</p> <ul style="list-style-type: none"> • <i>Will it minimise the loss of best and most versatile agricultural land?</i> • <i>Will it protect, restore or enhance natural capital and ecosystem services</i>
NE6		<p><u>Soil, geology and land use</u> We are aware of options for large infrastructure development within the West Country region including the SROs; ‘Cheddar II’ and ‘Mendip Quarries’. Whilst we</p>	Comment noted.

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Consultation Comments	Section	Consultee Response	Response/Action
		know these projects do not solely belong to Wessex Water, they should still be included within the SEA if there is a potential they will be used to supply their customers.	
NE7	3.4	<u>Water</u> Natural England advise that water dependant SSSIs, European sites and Ramsar sites will need to be considered within this topic of the SEA to ensure that requirements contained within the relevant legislations are met. We mention this as WFD is referenced throughout this topic, but nature conservation designations appear not to be.	Comment noted. Impacts of proposed options on water dependent SSSI's, European sites and Ramsar sites will be considered in the Biodiversity, Flora and Fauna section of the SEA Scoping Report to avoid any duplication of baseline issues.
NE8	3.4	<u>Water</u> We advise that this section mentions that water resource required to achieve/maintain favourable condition for SSSIs as well as restoring the ecological function and ecosystem services provided by peatlands/wetlands.	Comment noted. The water section of the baseline information presented includes details of the sustainability reductions programme and the WINEP investigations, both of which can support the maintenance and/or recovering of favourable status of designated sites.
NE9	3.4.35	<u>Water</u> There should be an ambition within the SEA objectives to establish more natural flow regimes in the rivers affected by Wessex Water's operations. Compensation flows should reflect natural seasonal variations to allow natural river processes to occur and create suitable habitat for aquatic flora and fauna including migratory fish species.	Comment noted. The proposed guide questions ask 'Will it result in unsustainable changes to flow regimes, channel morphologies, wetted width or river levels?'. This, in conjunction with the guide question "Will it promote the use of sustainable drainage systems?" is considered to promote nature-based solutions to achieve flow regimes compatible with sustainable outcomes.
NE10	Table 2.1 & Appendix B	<u>Climate Change</u>	Comment noted.

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		Natural England advise that the most up to date version of the national Climate Change Risk Assessment (CCRA3) is referred to within the 'Review of Plans and Programmes' and throughout the SEA as well as fully cited in Appendix B. There does not appear to be any mention of this throughout the scoping report. CCRA3 recognises climate change risk to sensitive habitats, however this does not appear to be fully captured within the SEA baseline, particularly when considering protected sites.	<p>The Climate Change Risk Assessment 2022 will be included in the review of plans and programmes, as well as Appendix B, of the Environmental Report.</p> <p>The risk posed to sensitive habitats by climate change will be included in the baseline key issues in the Environmental Report.</p>
NE11	Appendix C	<p><u>Climate Change</u></p> <p>Natural England does not consider that this topic fully captures the impacts that climate change could have on water dependant habitat resilience. For example, the Proposed Guide Question: "Will it increase environmental resilience to the effects of climate change including to impacts on flood risk and water quality?." Natural England would prefer this to have additional focus on natural ecosystems and be reflected in the SEA objectives. We advise the need to enhance the resilience of natural ecosystems to climate change now, prior to engaging in new business activities for the benefit of wildlife as well as the human population.</p>	<p>Comments noted.</p> <p>The proposed guide question will be amended to give additional focus to climate change impacts on natural ecosystems in the Environmental Report:</p> <p>"Will it increase environmental resilience (including that of natural ecosystems) to the effects of climate change including to impacts on flood risk and water quality?."</p> <p>The question does not prescribe when the effects could be considered, although consistent with the SEA requirements to consider short-, medium- and long-term effects, consequences will be considered for the plan duration.</p>
NE12	Appendix C	<p><u>Climate Change</u></p> <p>It is not clear from the scoping report that Wessex Water will assess their carbon expenditure adequately. It appears that there will only be consideration for amount of carbon released from greenhouse gas emissions and no accounting for the reduction of carbon sequestration from the loss natural capital such as woodlands and</p>	<p>Comment noted.</p> <p>The proposed guide questions ask, 'Will the option affect carbon sequestration?'. Assessment of options would cover release of previously sequestered carbon.</p>

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		wetlands. We strongly recommend this is included in the SEA.	
NE13	3.6.12	<p><u>Climate Change</u></p> <p>The baseline key issue: “The need to take into account, and where possible adapt to, the potential effects of climate change” is slightly misleading as it implies that climate change is mainly a future issue. The reality is that we are seeing the effects of climate change now, and all sectors need to acknowledge this and take action, not only in terms of carbon mitigation, but also to actively enhance and adapt ecosystems to tackle the contemporary issues they are facing. We advise that this is expanded on within the Water Resource Management Plan’s SEA, especially given the risk that climate change puts on water resources and the need to balance sustainable water abstraction with environmental health.</p>	<p>Comment noted.</p> <p>The key issue will be amended to the following in the Environmental Report:</p> <ul style="list-style-type: none"> The need to take into account, and where possible adapt to, the current and anticipated future effects and risks of climate change.
NE14	N/A	<p><u>Climate Change</u></p> <p>The following may be useful resources that Wessex Water could use in order help with climate change assessments: Committee on Climate Change Net Zero Report and the Met Office 2018 UK Climate Predictions (UKCP18)</p>	Comments noted.
NE15	N/A	<p><u>Landscape and visual amenity</u></p> <p>The SEA will need to undertake a Landscape and Visual Impact Assessment (LVIA) for any future water resource options which may result in significant infrastructure development in or in the setting of an Area of Outstanding Natural Beauty (AONB). This will only be necessary if there is any work that may be required as part of the Water Resource Management Plan that would influence an AONB.</p>	<p>Comments noted.</p> <p>The SEA does include consideration of effects on landscape and designated receptors such as National parks and AONBs. As a strategic assessment of plan effects, whilst such effects will be identified, described, and evaluated, this will not extend to a specific LVIA, as the draft WRMP proposals are insufficient and at a too immature state to be confident of more than a qualitative assessment. For those schemes taken forward through the planning process, for</p>

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Consultation Comments	Section	Consultee Response	Response/Action
			consent, they would be subject to the full range of assessment requirements including, where appropriate LVIA.
NE16	4	<p><u>Approach to the Assessment</u></p> <p>Natural England has reviewed the proposed assessment framework as outlined in section 4.2 of the Water Resource Management Plan Scoping Document. We consider that the proposal seems appropriate and should ensure that all water resource options are suitably reviewed against the SEA objectives outlined.</p>	Comment noted.
NE17	Table 4.3	<p><u>Approach to the Assessment</u></p> <p>The 'Example Feasible Options Assessment Matrix' provided in Table 4.3 and explanation in paragraphs 4.4.3 – 4.4.6 is all very clear as is the 'Example Preferred Options Assessment Matrix' provided in table 4.5 and Natural England consider that this will help summarise the results of the SEA very clearly per water resource option.</p>	Comment noted.
NE18	4	<p><u>Approach to the Assessment</u></p> <p>Natural England would like to reiterate the importance of highlighting, where necessary, an option may cause a Likely Significant Effect (LSE) to a European site as this will require an Appropriate Assessment as part of the HRA. We are satisfied that the SEA will capture this given that the matrix in Appendix C for 'Thresholds of Significance' identifies such instance as a 'Significant Negative' but we want to ensure Wessex Water will not include any options which have triggered this as a preferred option without undergoing a formal Appropriate Assessment.</p>	<p>Comment noted.</p> <p>WWSL as the competent authority under the Habitat Regulations will undertake a separate HRA. Consistent with the regulatory requirements, where likely significant effects have been identified of any feasible options selected as a preferred option, an appropriate assessment will be undertaken. This will be reflected in the commentary against the SEA objective for biodiversity.</p>

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Consultation Comments	Section	Consultee Response	Response/Action
NE19	4.4.12	<p><u>Secondary, Cumulative and Synergistic Environmental Effects</u></p> <p>Natural England broadly agree with the statement on assessment of cumulative effects. However, we would advise that the paragraph expands to identify any relevant plans and projects that may be put in place during the period projected in WRMP24, including other Water Company Plans, Local Authority Plans and reviews how development and agriculture over the plan period may change local water budgets.</p>	<p>Comment noted.</p> <p>The Environmental Report will include the consideration of other plans and programmes in order to complete the assessment of cumulative effects of the draft WRMP.</p>
NE20		<p><u>Secondary, Cumulative and Synergistic Environmental Effects</u></p> <p>While we acknowledge that the Water Resource Management Plan will not directly contribute to the creation of Nature Recovery Networks (NRNs), it is likely that local boroughs and districts will start investing in this work over the coming years, and as such these plans will need to be considered in tandem with any actions taken.</p>	<p>Comment noted.</p>
NE21		<p><u>Other Comments</u></p> <p>Some of the language used in the SEA objectives should be more ambitious. For example, within the 'Water – Quantity and Quality' topic. "To maintain, protect and enhance surface and ground water resource levels, flows and quality." Typically, water environments are not in a suitably healthy condition to be maintained but are in desperate need of improvement.</p>	<p>Comment noted.</p> <p>No change has been made as the guide question includes the opportunity for enhancement.</p>
NE22	N/A	<p><u>Other Comments</u></p> <p>Whilst Natural England acknowledge it is the remit of the West Country Water Resource Group (WCWRG) to implement actions for Environmental Destination, this should be referred to within Wessex Water's WRMP24</p>	<p>Comment noted.</p> <p>Annex 3 has been reviewed ahead of production of the Environmental Report, and where relevant, addresses the themes identified. For example, both the Government's 25</p>

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		<p>and the SEA where necessary. We have attached in Annex 3, Natural England's positional paper on regional water resource management plans. Please make sure all the themes in this document are covered and our response to West Country Water Resource Group's draft regional plan is reflected.</p>	<p>Year Environment Plan and the Environment Act 2021 are included in the review of plans and programmes.</p> <p>However, the principal requirements identified in Annex 3 relate to The Conservation of Habitats and Species Regulations (2017) (the 'Habitats Regulations'). The separate WWSL draft WRMP24 Habitat Regulations Assessment (HRA) has assessed the effects of the plan on designated conservation sites in accordance with Regulations 63 and 64 of the Habitat Regulations. Whilst the HRAs has been undertaken and reported separately from the SEAs, its findings have been used as appropriate to inform the findings of this SEA, notably against the biodiversity, fauna and flora topic.</p> <p>The remaining requirements identified by Annex 3 relate to either the Regional Plan or to the draft WRMP, and are outside the SEA.</p>
<p>NE23</p>	<p>N/A</p>	<p><u>Other Comments</u></p> <p>In relation to the previous comment, we also advise there is reference to water resource need for the recovery of peatlands, particularly those of the Somerset Levels and Moors and North Somerset Levels and Moors. The regional plan has already identified a water supply deficit within the West Country which did not account for either of those sites. Although the restoration will fall within the remit of WCWRG through their environmental destination work, we advise that Wessex Water's Water Resource Management Plan takes consideration for this water resource requirement and reflect it within the SEA. Natural England have already asked for Wessex Water as part of their commitment to the Water Industry National Environment Program to perform and investigation on</p>	<p>Comment noted.</p>

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Consultation Comments	Section	Consultee Response	Response/Action
		this issue. This will involve partnership working with ourselves, the Somerset Rivers Authority and Somerset Internal Drainage Board.	

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Table B.3 Responses to the Environment Agency’s comments on the Environmental Report

Respondent/ Ref	SEA Environmental Report Section	Consultee Response	Response/Action
Environment Agency EA1	Monitoring indicators	The EA considers that consideration should be given to inclusion of an additional indicator to include monitoring of an area of land where development has a reduced risk from brownfield sites under SEA Objective 2 (use of land).	Table 7.1 of the revised Environmental Report containing the SEA of the revised draft WRMP24 has been amended to reflect the suggestion of an additional indicator.
Environment Agency EA2	Consideration of Environmental Net Gain (ENG)	<p>The EA considers that the WWSL should ensure it demonstrates how Environmental Net Gain (ENG) has been considered within the SEA. This should be included in its revised draft plan.</p> <p>The SEA Report does not mention an ENG approach. The method WWSL use for the preferred options, i.e., showing how to get to 10% BNG and then calculating the ecosystem service benefit from this additional habitat creation demonstrates the ENG approach, however, ENG is not explicitly mentioned.</p> <p>Additionally, WWSL’s Route Map to Net Zero is mentioned in relation to offsetting carbon emission but does not mention consideration of the BNG/NCA outcomes (Section 6.6.11 SEA Report).</p>	<p>Section 1.7 of the Environmental Report outlines the approach to BNG and NCA and that a separate BNG and NCA has been undertaken to address these requirements. Where appropriate, the findings have been used to inform the SEA, notably against the biodiversity, flora and fauna topic when considering the effects of individual feasible and preferred options. For example:</p> <ul style="list-style-type: none"> for construction, for the feasible option 31.02 ‘Raising Dams - Yeovil Reservoir’, it is stated that “The BNG assessment identifies that approximately half of the option extent is covered by Lakes / Ponds which have high Area-Based Habitat Units (ABHU) and the remainder is Cropland with low ABHU. The BNG assessment considers that the option represents a high risk to biodiversity net gain”. for the operation of the preferred option 18.01 ‘Somerset Spine main upgrade’ it is stated that “The BNG assessment calculates that the option would require a total of 70 hectares of off-site habitat creation including mixed woodland (10 hectares), scrub (10 hectares) and other neutral grassland (50 hectares) in order to achieve BNG, which has been assessed as having a moderate positive effect on biodiversity”.

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Respondent/ Ref	SEA Environmental Report Section	Consultee Response	Response/Action
<p data-bbox="1426 347 2011 499">The revised Environmental Report has been updated to reflect the revised draft WRMP24 and includes where relevant, updated commentary. For example, Table 6.7 includes reference to the BNG and the positive addition provision of habitat to meet the net gain requirements.</p>			

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Table B.4 Responses to Natural England’s comments on the Environmental Report

Respondent/ Ref	SEA Environmental Report Section	Consultee Response	Response/Action
Natural England NE1	Assessment of impacts on SSSIs	Natural England (NE) consider that whilst the HRA is well structured, there are a number of instances, where key information required in order to understand likely impacts on designated sites appears to be absent. This also applies to possible impacts on certain SSSIs within the SEA. NE also note significant inconsistencies between the HRA, the wider plan, and the current PR24 WINEP.	<p>The Environmental Report of the revised draft WRMP24 has been reviewed to ensure the consistent treatment of designated conservation sites and features within the SEA of the revised preferred options.</p> <p>The SEA assessment has been amended to include, as appropriate, information from existing and proposed studies e.g., the Water Industry National Environment Programme (WINEP).</p>
Natural England NE2	Consideration of Regional Plan’s Environmental Destination	NE consider that the Environmental Destination set out in the WCWR Regional plan is not sufficiently robust to ensure compliance with the regulatory requirements, and this is material to the adequacy of the SEA.	Comment noted. This comment relates to the West Country Water Resources (WCWR) Regional Plan and how Environmental Destination has been integrated into the WRMP24 and as such, is outside of the scope of the SEA of the WRMP24.
Natural England NE3	Assessment of impacts on SSSIs	Consider that the assessment of impacts on SSSIs in the SEA is sparse and there is little evidence of a systematic approach to assessing the impact of either the dWRMP options or the overall impact of the plan on SSSIs. There is little explicit assessment of impacts on SSSIs and their interest features. For example:	The aim of SEA is to identify, describe and evaluate the likely significant effects of implementing the WRMP24 on the environment. Schedule 2 (6) of the SEA Regulations require that the assessment includes information on the “likely significant effects on the environment, including on issues such as: biodiversity; population; human health; fauna; flora; soil;

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Respondent/ Ref	SEA Environmental Report Section	Consultee Response	Response/Action
	<ul style="list-style-type: none"> On pg 23 of the SEA it is noted that 7 of the Preferred Options are likely to have a negative effect on SSSIs but what this means for SSSIs is unclear. Option 55.06 (North Grid to South Grid) appears to involve a pipeline which will transverse Fontmill SSSI but insufficient information has been provided to allow us to conclude that its impact will be insignificant. The assessment of Option 38.04 for operational improvements allowing increased abstraction upstream of Bere Stream SSSI does not consider the future impact on the flows of the SSSI (this option was also inappropriately screened out during the level 1 WFD assessment). The assessment of Option 38.11 for operational improvements allowing increased abstraction upstream of River Frome SSSI does not consider impacts on the future condition of the downstream SSSI. 	<p>NE considers that the assessment of impacts on SSSIs in the SEA does not meet the requirements of the Wildlife and</p>	<p>water; air; climatic factors; material assets; cultural heritage, including architectural and archaeological heritage; landscape; and the inter-relationship between the issues referred to".</p> <p>Contextual information covering a review of plans and programmes, the baseline, its evolution and key issues has been undertaken for all the topics listed by Schedule 2 of the SEA Regulations including "biodiversity, fauna and flora". This is summarised in Section 2 (Review of Plans and Programmes) and Section 3.2 (Biodiversity baseline, evolution and issues) of the Environmental Report to accompany the Draft WRMP24. The baseline and evolution subsections of 3.2 of the report include information on the number, location, condition and threats to SSSIs in the Wessex Water supply area.</p> <p>This was reflected in the scope of the assessment and assessment methodology which uses appropriate SEA objectives and guide questions to assess the effects of the WRMP24. The draft scope of the SEA was subject to consultation for 5 weeks from 4th April to 10th May 2022, with responses received from the EA and NE, with amendments made to the approach to reflect the comments.</p>

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Respondent/ Ref	SEA Environmental Report Section	Consultee Response	Response/Action
		<p>Cuntryside Act 1981 as Amended and this needs to be adequately addressed before the dWRMP is published. This assessment needs to systematically examine all potential impact pathways across all relevant SSSIs including specific consideration of their individual interest features and their requirements for favourable condition.</p>	<p>SEA Objective 1 (Biodiversity) 'To protect, restore and enhance biodiversity, including designated sites of nature conservation interest, protected habitats and species, enhance ecosystem services and resilience and deliver a net biodiversity gain.' and ten supporting guide questions have been used to assess the positive and negative effects of the construction and operational effects of the of the feasible and preferred options, the preferred programme of options, the cumulative effects and reasonable alternatives to the plan.</p> <p>In determining effects, consideration has been given to a range of potentially sensitive designated biodiversity sites and features including SACs, SPAs, Ramsar, SSSIs, NNRs, LNRs and Ancient Woodlands. These are considered on a consistent basis for each feasible and preferred supply option with effects recorded in Appendix E and F.</p> <p>The Environmental Report of the revised draft WRMP24 has been reviewed to ensure the consistent treatment of designated conservation sites and features within the SEA of the revised preferred options.</p>

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Respondent/ Ref	SEA Environmental Report Section	Consultee Response	Response/Action
Natural England NE4	Assessment of protected landscapes	<p>Natural England note that the SEA screening process has considered potential impacts on protected landscapes and that some likely impacts have been identified.</p> <p>However, it is considered that the assessment is very high-level and it is not possible for Natural England to fully assess the adequacy of the generic mitigation options presented in the context of specific cases.</p>	<p>The Environmental Report of the revised draft WRMP24 has been amended to ensure the consistent treatment of designated conservation and landscape sites and features within the SEA of the revised preferred options.</p> <p>Where options have been identified as being in close proximity (within 10km of) to protected landscapes these designations have been identified in the assessment and the likely effects have been assessed (based on the option information). The assessment is proportionate to the level of information available about the option and proportionate to a strategic assessment.</p> <p>Section 6.6 sets out likely mitigation measures that will be required to be developed at a scheme level through (for example) implementation of a CEMP.</p>
Natural England NE5	Biodiversity assessment impacts	<p>The assessment is very high-level and does not systematically discriminate between different types of biodiversity impact (e.g. on SSSIs versus species recovery and protected species).</p> <p>It is not clear how obligations under the Environment Act 2021, and the Environmental Improvement Plan 2023 have been taken into account.</p>	<p>The SEA provides a proportionate assessment of the WRMP24 covering a comprehensive range of effects, consistent with those identified in Schedule 2(6) of the SEA regulations and anticipated for water resource proposals. This includes effects on biodiversity, flora and fauna, which are assessed against the SEA objective "To protect, restore and enhance biodiversity, including designated sites of nature conservation interest, protected</p>

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Respondent/ Ref	SEA Environmental Report Section	Consultee Response	Response/Action
		<p>NE consider that the dWRMP overall appears to provide little detail on changes needed to abstractions to protect or improve locally important sites (undesignated sites), including those supporting priority habitats and species. This in particular, includes chalk streams vulnerable to impact from abstractions such as in Dorset, the Bere Stream (upstream of the designated SSSI), and the headwater of the River Bride which is also subject to Drought Plan actions.</p>	<p>habitats and species, enhance ecosystem services and resilience and deliver a net biodiversity gain" and supported by a range of assessment questions. In determining effects, consideration has been given to a range of potentially sensitive designated biodiversity sites and features including SACs, SPAs, Ramsar, SSSIs, NNRs, LNRs and Ancient Woodlands. These are described in the report.</p>
<p>Natural England NE6</p>	<p>Assessment – Species recovery and protected species</p>	<p>Natural England consider that there is little evidence to demonstrate that obligations regarding species recovery and protected species have actively been considered.</p>	<p>SEA Objective 1 includes (inter alia) reference to protect, restore and enhance biodiversity, including protected species. For each option ass</p> <p>Within the mitigation section (Section 6.6) it is identified that specific species avoidance of mitigation measures can only be determined at the scheme level</p>
<p>Natural England NE7</p>	<p>Assessment – climate change and ecological impacts</p>	<p>In terms of water availability, the likely effects in terms of ecological damage are not considered to be factored into dWRMP climate change modelling.</p> <p>NE consider that the interaction between nutrient pollution and water availability is an area of concern. Whilst this is a serious concern for the River Avon SAC, it is perhaps most evident on the Somerset</p>	<p>The SEA provides a proportionate assessment of the WRMP24 covering a comprehensive range of effects, consistent with those identified in Schedule 2(6) of the SEA regulations and anticipated for water resource proposals.</p>

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Respondent/ Ref	SEA Environmental Report Section	Consultee Response	Response/Action
		Levels and Moors Ramsar where these interactions were clearly occurring in the summer of 2022 with obvious and serious negative ecological effects. This is also relevant to HRA.	
Natural England NE8		Natural England have highlighted the publication of the Environmental Improvement Plan 2023.	The Environmental Improvement Plan 2023 has been considered in Section 2 of the revised Environmental Report as part of the Review of Plans and Programmes, with further detail included in Appendix C

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Table B.5 Responses to Historic England's comments on the Environmental Report

Respondent/ Ref	SEA Environmental Report Section	Consultee Response	Response/Action
Historic England HE1	N/A	<p>Reference to the historic environment</p> <p>It will be important for the dWRMP24 to reference the historic environment. HE acknowledge the importance of the natural environment in relation to the plan's content, there is nevertheless a risk that the historic environment has not been adequately considered. As a general comment, the plan should include a few paragraphs summarising why the historic environment is important in the context of water resource planning and management, what steps have been taken so far to consider the historic environment and how proposals will need to take the historic environment into account going forward.</p> <p>For example, section 2.1 of the dWRMP24 briefly paints a picture of the plan area and makes reference to the protection of landscapes and habitats. HE suggest that this section would benefit from an associated description of the heritage resource of the area, including archaeology, coastal heritage, four World Heritage Sites and a range of geologies and landscape character areas. This may be drawn from the baseline information included in the SEA.</p>	<p>Comment noted.</p> <p>Wessex Water has addressed this request in the SoR and detailed how the importance of the historic environment to the WRMP24.</p> <p>The aim of SEA is to identify, describe and evaluate the likely significant effects of implementing the WRMP24 on the environment. Schedule 2 (6) of the SEA Regulations require that the assessment includes information on the "likely significant effects on the environment, including on issues such as: biodiversity; population; human health; fauna; flora; soil; water; air; climatic factors; material assets; cultural heritage, including architectural and archaeological heritage; landscape; and the inter-relationship between the issues referred to".</p> <p>Contextual information covering a review of plans and programmes, the baseline, its evolution and key issues has been undertaken for all the topics listed by Schedule 2 of the SEA Regulations including "cultural heritage, including architectural and archaeological heritage". This is summarised in Section 2 (Review of Plans and Programmes) and Section 3.9 (Cultural Heritage baseline, evolution and</p>

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Respondent/ Ref	SEA Environmental Report Section	Consultee Response	Response/Action
			<p>issues) of the Environmental Report to accompany the Draft WRMP24. For example, as outlined in paragraph 3.9.14:</p> <p>“The key environmental, social and economic issues relevant to the WRMP24 arising from the baseline assessment for cultural heritage are:</p> <ul style="list-style-type: none"> • The need to conserve and enhance the historic significance of buildings, monuments, features, sites, places, areas of archaeological and cultural heritage interest, particularly those which are sensitive to the water environment. • The need to conserve and enhance World Heritage Sites within the Wessex Water area. • The need to avoid damage to important wetland areas with potential for paleoenvironmental deposits, for example within the Avon Valley National Character Areas.” <p>This is then reflected in the scope of the assessment and assessment methodology which uses appropriate SEA objectives and guide questions to assess the effects of the WRMP24. The draft scope of the SEA was subject to consultation for 5 weeks from 4th April to 10th May 2022, with responses</p>

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Respondent/ Ref	SEA Environmental Report Section	Consultee Response	Response/Action
			<p>received from the EA and NE. SEA Objective 12 (Cultural Heritage) 'To conserve and enhance the historic environment including the significance of heritage assets and their settings and archaeologically important sites' and four supporting guide questions have been used to assess the positive and negative effects of the construction and operational effects of the of the feasible and preferred options, the preferred programme of options, the cumulative effects and reasonable alternatives to the plan.</p> <p>In determining effects, consideration has been given to a range of potentially sensitive designated cultural heritage sites and features including World Heritage Sites, Schedule Monuments, Listed Building and Historic Parks and Gardens. For example, against a feasible option, the following construction effects were identified:</p> <p><i>"The construction site is within 1km of 25 Scheduled Ancient Monuments (7 of which are within the option location: Pen Pits quern quarries SE of Hart Hill; White Sheet Hill ditch; Neolithic causewayed camp, White Sheet Downs; Barrow 270m north east of White Sheet camp; White Sheet camp; Later Iron Age enclosure, Ilchester Mead; and Bowl barrow 1050m north east</i></p>

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Respondent/ Ref	SEA Environmental Report Section	Consultee Response	Response/Action
			<p><i>of Wood Farm); 5 registered parks and gardens (one of which is within the option location, Montacute House); and 429 Listed Buildings (one of which is identified as being within the option location, Donne Lane Head). Sections of the option are adjacent to the Odcombe Conservation Area and North Cadbury Conservation Area. Due to the potential for effects on the settings of these heritage assets, the option has been assessed as having a significant negative effect on this objective."</i></p> <p>Where preferred options are taken forward, and if effects on cultural heritage are identified, the appropriately responsible body will be consulted.</p>
Historic England HE2	N/A	<p>In seeking to devise a 'best value plan', HE's response makes a strong case that criteria and metrics should make reference to the built and historic environment. In drawing up schemes, water companies should be seeking not just to minimise harm to the significance of heritage assets and their settings, but to make a positive contribution to the historic environment where opportunities exist. In this regard, in relation to nationally significant infrastructure the draft NPS (paragraph 4.7.9) suggests considering measures to address heritage assets at risk, amongst other things. HE also suggest that the</p>	<p>WWSL's best value planning metrics have been derived to focus on the core aspects of water resources planning in the trade-off between environmental benefit, cost and performance. They also reflect the assessment scores in the SEA, which include minor, moderate or significant positive or negative effects from operation and construction.</p> <p>With respect to the metrics and the input of the SEA findings, a distinction was made between those non-location effects e.g., embodied and operational greenhouse gas emissions and water resources (yield) and</p>

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Respondent/ Ref	SEA Environmental Report Section	Consultee Response	Response/Action
		<p>concept of Environmental Destination could be beneficially broadened to include the historic environment as well as the natural environment.</p>	<p>waste and resources used and the locational effects e.g., constraints such as a designated habitat (biodiversity), a World Heritage Site (historic environment) or National Park (landscape). Mitigation to resolve non-location effects (where required) tends to reflect corporate positions whereas, mitigation to resolve location effects tend to be bespoke, and can in some cases be difficult to resolve without additional time and resources and poses risks to implementation, which then can challenge the viability of selected options. Within the context then of decision making, locational effects are useful to discriminate between options, as it then highlights those where environmental constraints/risks are greatest. The following locational effects were considered as being key:</p> <ul style="list-style-type: none"> • For construction effects – where the SEA has identified likely significant negative effects for one or more of 1. Biodiversity, 4. Flood risk, 12. Cultural Heritage and 13. Landscape. • For operational effects – where the SEA has identified likely significant negative effects for one or more of 1. Biodiversity and 3. Water quality.

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Historic England HE3	N/A	<p>'Best value' planning, and the need for the metric/criteria to reference heritage</p> <p>HE support the principal of a 'best value' plan, whereby decisions are made based not solely on cost but with consideration of other factors such as benefits to customers, the environment and society. However, the criteria and metrics presented in Table 3-2 fail to mention built or cultural heritage and HE are concerned that the decision making process may therefore fail to account for harms or potential benefits/enhancements when selecting preferred projects and a preferred plan. HE strongly recommend</p>	<p>Where construction and operational negative effects have been identified for the specific SEA objectives, these effects have been converted into a value scale (0 – 6 for each SEA Objective), then added together with a combined value scale for construction of 0 – 24 and for operation of 0 – 12, with the lower the value, the higher the risk associated with the option. In consequence, through this process of ensuring the decision making metrics to determine the best value plan include the findings of the SEA, and of which the historic environment is considered a key determinant, the effects on heritage assets have been effectively considered.</p> <p>Comment noted.</p> <p>WWSL's best value planning metrics have been derived to focus on the core aspects of water resources planning in the trade-off between environmental benefit, cost and performance. They also reflect the assessment scores in the SEA, which include minor, moderate or significant positive or negative effects from operation and construction and include reference to the effects on cultural heritage, taking into account potential effects on sensitive designated cultural heritage sites and features including World Heritage Sites,</p>

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		<p>that a criteria and metric relating to built and cultural heritage are incorporated into Table 3-2. It is also not currently clear, based on the analysis in section 5.2 (programme appraisal) and Table 5-3 (review of assessed plans), whether the preferred plan is 'best value' in relation to these metrics or whether the preferred plan has been selected primarily on a cost basis.</p>	<p>Schedule Monuments, Listed Building and Historic Parks and Gardens.</p>
<p>Historic England HE4</p>	<p>N/A</p>	<p>Heritage impact assessment of site options and selections</p> <p>To inform site selection HE's guidance 'The Historic Environment and Site Allocations in Local Plans' sets out a suggested approach to assessing sites and their impact on heritage assets including archaeology, known as heritage impact assessment. It is important that a degree of heritage impact assessment is undertaken at plan making stage.</p>	<p>Comment noted.</p> <p>A Scoping Report that set out the proposed approach to assess the likely significant environmental effects of the draft WRMP24 was completed and issued for scoping consultation for 5 weeks from 4th April to 10th May 2022. Responses were received from the EA and NE. The representations received and how they have been taken into account were presented in Appendix B of the Environmental Report completed to accompany the draft WRMP24.</p> <p>SEA Objective 12 (Cultural Heritage) 'To conserve and enhance the historic environment including the significance of heritage assets and their settings and archaeologically important sites' and four</p>

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Historic England HE5	N/A	In order to take account of unrecorded and non-designated archaeology, the relevant Historic Environment Record should be referred to, and the views of local authority archaeological advisers sought.	<p>supporting guide questions have been used to assess the positive and negative effects on cultural heritage of the construction and operational effects of the of the feasible and preferred options, the preferred programme of options, the cumulative effects and reasonable alternatives to the plan.</p> <p>In determining effects, consideration has been given to a range of potentially sensitive designated cultural heritage sites and features including World Heritage Sites, Schedule Monuments, Listed Building and Historic Parks and Gardens.</p> <p>The approach taken is proportionate to the strategic nature of the plan, evidence based and reflects scoping consultation responses were received.</p> <p>Comment noted. The approach taken is proportionate to the strategic nature of the plan, evidence based and reflects scoping consultation responses were received. Once the final WRMP24 has been published, the selected schemes for water resource management will need to be implemented through specific projects. As part of this process, each project may be subject to further assessment to understand and manage its potential environmental and social impacts. This will</p>

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Historic England HE6	N/A	<p>Paragraph 1.7.3. of the draft NPS states that: 'Schemes that are included in a final published WRMP will have been assessed to inform suitability and ensure they do not have any unacceptable environmental impacts that cannot be overcome'. Paragraph 2.5.6 states that 'Any option included in a final WRMP will need to consider feasibility and reliability as well as taking account of potential environmental and social impacts'. HE has yet to see evidence that would meet the above requirements relating to the historic environment.</p>	<p>include where relevant, further review of evidence and information including the relevant Historic Environment Record.</p> <p>The National Policy Statement (NPS) for water resource infrastructure applies to qualifying nationally significant infrastructure projects, as defined in sections 27, 28 and 28A of the Planning Act. Paragraph 1.7.3 of the draft NPS for water resource infrastructure¹⁵⁴ quoted in the response has been superseded by paragraph 1.6.2 of the published NPS¹⁵⁵ which states that:</p> <p><i>"A final published water resources management plan will have been subject to relevant statutory environmental assessments. Information from these assessments may be relevant to inform the detailed site specific assessments, required for a development consent application."</i></p> <p>Relevant statutory environmental assessments include SEA, which has been undertaken of the draft and revised draft WRMP24 and includes consideration of cultural heritage and the historic environment</p>

¹⁵⁴ Defra (2018) Draft National Policy Statement for Water Resources Infrastructure. Available online from: https://consult.defra.gov.uk/water/draft-national-policy-statement/supporting_documents/draftnpswaterresourcesinfrastructure.pdf

¹⁵⁵ Defra (2023) National Policy Statement for Water Resources Infrastructure. Available online from:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1150075/E02879931_National_Policy_Statement_for_Water_Resources.pdf

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Respondent/ Ref	SEA Environmental Report Section	Consultee Response	Response/Action
Historic England HE7	N/A	<p>Paragraph 1.7.3. of the draft NPS states that: ‘Schemes that are included in a final published WRMP will have been assessed to inform suitability and ensure they do not have any unacceptable environmental impacts that cannot be overcome’. It is therefore important that options are transparent, are subject to a heritage impact assessment at plan making stage, that proper consultation is carried out on these options, and that this informs the selection of sites to go forward to the final published plan.</p>	<p>Paragraph 1.7.3 of the draft NPS for water resource infrastructure¹⁵⁶ quoted in the response has been superseded by paragraph 1.6.2 of the published NPS¹⁵⁷ which states that:</p> <p><i>“A final published water resources management plan will have been subject to relevant statutory environmental assessments. Information from these assessments may be relevant to inform the detailed site specific assessments, required for a development consent application.”</i></p> <p>Relevant statutory environmental assessments include SEA, which has been undertaken of the draft and revised draft WRMP24 and includes consideration of cultural heritage and the historic environment. Where options have been identified, given the strategic nature of the WRMP24 and their timing (in some cases with implementation beyond 2050), there remains some flexibility over design and location, which if included in the preferred option suite, will permit further refinement (either through future plan cycles or through specific scheme development).</p>

¹⁵⁶ Defra (2018) Draft National Policy Statement for Water Resources Infrastructure. Available online from: https://consult.defra.gov.uk/water/draft-national-policy-statement/supporting_documents/draftnpswaterresourcesinfrastructure.pdf

¹⁵⁷ Defra (2023) National Policy Statement for Water Resources Infrastructure. Available online from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1150075/E02879931_National_Policy_Statement_for_Water_Resources.pdf

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Respondent/ Ref	SEA Environmental Report Section	Consultee Response	Response/Action
Historic England HE8	N/A	<p>Notwithstanding the lack of detailed/locational information with which to assess the impacts of proposals or validate the findings of the SEA, HE is concerned to note that within the SEA, 12 of the preferred supply options are assessed as having a negative/potentially negative effect on the historic environment. Five of these are assessed as having significant negative effects:</p> <ul style="list-style-type: none"> - Pewsey Resilience (reported as crossing a Scheduled Monument with numerous other potential heritage impacts) - Poole reuse 50% usage (reported as crossing five listed buildings and a conservation area plus numerous other potential heritage impacts) - CALM main upgrade and reversal (reported as crossing four scheduled Monuments with numerous other potential heritage impacts) - North Grid to South Grid reinforcements (reported as crossing four scheduled monuments with numerous other potential heritage impacts) - Yeovil transfer to Purbeck (lacks specific discussion in section 6.2) 	<p>Comments noted. Paragraph 6.2.14 of the Environmental Report completed to accompany the draft WRMP24 states that for construction:</p> <p><i>"A total of 12 of the preferred supply options were assessed as having a negative effect or potentially negative effect on the historic environment (SEA Objective 12) as they would involve construction works crossing, or in close proximity to designated heritage assets, with the potential for effects on the settings/integrity of these heritage assets. A total of five options (18.27, 52.01, 55.02, 55.06 and 55.07) were assessed as having a significant negative effect in this regard."</i></p> <p>No significant negative effects were identified for operation.</p> <p>Section 6.6 identifies a range of potential mitigating measures for the likely significant effects identified including those for cultural heritage. This includes through micro-siting/ alternative pipeline routes and:</p> <ul style="list-style-type: none"> • careful consideration being given to the presence of heritage assets when finalising proposals for pipeline routing;

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Historic England HE9	N/A	HE is extremely concerned that there is potential for preferred options to have very significant impacts on heritage assets, which in some cases may amount to substantial harm or total loss against the tests in national planning policy. In relation to pipelines, HE's primary focus (assuming	<ul style="list-style-type: none"> • where required, a programme of trial trenching and archaeological recording should be undertaken at development sites, with results disseminated; • new above-ground infrastructure should be screened, where possible and informed by a heritage appraisal/assessment, to minimise effects on the settings of heritage assets; • consideration should be given to enhancing the significance of, and access to, heritage assets. <p>The revised draft WRMP24 includes a revised suite of preferred options. These have been subject to revised assessment, including SEA, and where likely significant effects have been identified, further mitigation measures have been considered.</p>

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		they are underground) is likely to be on direct physical impacts on heritage assets, in particular on archaeological remains, rather than temporary setting impacts during construction. HE emphasise that impacts on buried archaeological remains are permanent and irreversible, a matter which is not properly reflected in the SEA at present.	significant effects identified including changes to pipeline routes and where required, a programme of trial trenching and archaeological recording. The approach taken is proportionate to the strategic nature of the plan, evidence based and reflects scoping consultation responses were received.
Historic England HE10	N/A	HE requests that the differences in numbering of options should be noted, as it compounded the difficulty of understanding sites and their impacts, for example CALM main upgrade and North Grid to South Grid reinforcements are reported with different option IDs within Table 6-1 and the SEA.	Comment noted. The revised Environmental Report has been revised to ensure that option numbering is consistent with the revised draft WRMP24.
Historic England HE11	N/A	HE is further concerned to note that all of the 14 supply options were assessed as having a negative effect on landscape/visual amenity of designated landscapes and/or local landscape/townscape. This includes impacts associated with works within the Cranborne Chase and West Wiltshire Downs AONB and the Dorset AONB.	Comment noted.
Historic England HE12	Section 5.2/Table 5.4	While HE recognise that the Mendip Quarries SRO scheme is only selected from 2049 under the High scenario and is therefore not assessed in detail, HE wish to	Comment noted.

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		<p>raise the potential for this scheme to generate significant heritage impacts within the Mendip Hills, River Avon catchment, Bath springs or other areas (indeed significant impacts are alluded to in SEA Table 5.4 against Option ID 32.11). Whilst HE welcome an initial approach to HE for advice in relation to this SRO, more detailed site-specific information is required, particularly in relation to the routing of any pipeline(s).</p>	
Historic England HE13	Table NTS.1/Table 3.16	<p>Strategic Environmental Assessment Cultural heritage as a topic area within the Key Issues table (NTS.1) is welcomed, identifying ‘the need to conserve and enhance the historic significance of buildings, monuments, features, sites, places, areas of archaeological and cultural heritage interest, particularly those which are sensitive to the water environment’, while highlighting the presence of World Heritage Sites and important wetland areas with potential paleoenvironmental deposits within the plan area. HE also welcome the inclusion of the interrelated topic areas of ‘human environment’ and ‘landscape’.</p> <p>HE welcome the inclusion of cultural heritage as a key topic within the SEA assessment framework, with an associated objective ‘12. To conserve and enhance the</p>	Comments noted and support welcomed.

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		historic environment including the significance of heritage assets and their settings and archaeologically important sites.'	
Historic England HE14	N/A	A key issue with the assessment of options is that that the site/scheme descriptions have been redacted. Without further information on the location and characteristics of schemes, it is not possible to comment in detail on their potential heritage impacts, or on the opportunities for mitigation or enhancement that might exist. HE understand that this may now be available on request and look forward to further engagement.	Comment noted. An unredacted version of the SEA Environmental Report is available and can be provided upon request.
Historic England HE15	NTS/Section 6.2	There is repeated reference throughout the SEA to construction effects being 'temporary' and 'for the duration of construction'. For example, the second paragraph on page 24 states that: 'The preferred programme of options is considered to cumulatively have significant negative effects on the historic environment (SEA Objective 12) given the proximity of works for options 18.27, 52.01, 55.02, 55.06 and 55.07 to heritage assets. As these effects are most likely to be experienced in the construction phase, they are considered to be temporary.'	Comments noted. Page 24 is taken from the Non-Technical Summary for the Environmental Report, which summarises the option effects described in more detail in the Section 6 of the main report (accompanying the draft WRMP24) and in further detail in Appendices E and F for the individual options. For example, paragraph 6.2.14 states (more fulsomely): <i>"A total of 12 of the preferred supply options were assessed as having a negative effect or potentially negative effect on the</i>

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			<p><i>historic environment (SEA Objective 12) as they would involve construction works crossing, or in close proximity to designated heritage assets, with the potential for effects on the settings/integrity of these heritage assets. A total of five options (18.27, 52.01, 55.02, 55.06 and 55.07) were assessed as having a significant negative effect in this regard."</i></p> <p>With subsequent paragraphs then detailing the likely significant effects for the options identified, e.g., paragraph 6.2.15 states:</p> <p><i>"With regard to option 18.27, significant negative effects were identified against SEA Objective 12 as the option would involve works crossing the Compton Farm Romano-British and Early Medieval occupation sites and associated cultivation earthworks Scheduled Monument and would involve works within 1km of five other Scheduled Monuments, four listed buildings and three Conservation Areas."</i></p> <p>A precautionary approach to assessment has been taken, reflecting proximity to sensitive receptors. Where direct effects occur, these have been identified, described and assessed with opportunities for avoidance and mitigation detailed. The approach taken is proportionate to the</p>

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			<p>strategic nature of the plan, evidence based and reflects scoping consultation responses were received. Once the final WRMP24 has been published, the selected schemes for water resource management will need to be implemented through specific projects. As part of this process, each project may be subject to further assessment to understand and manage its potential environmental and social impacts.</p>
Historic England HE16	Table 6.7/Section 6.3	<p>This is repeated in Table 6.7 (Preferred Programme Assessment) for SEA Objective 12. HE wish to stress that some of the effects described are likely to be permanent and irreversible, such as the destruction of a listed building or scheduled monument. Within the SEA, any permanent harm as a result of construction needs to be clearly distinguished from temporary effects during construction (such as the impact on a historic setting of construction activities which may in some cases be reversible).</p>	<p>Table 6.7 of the Environmental Report presents the cumulative assessment of the strategic effects of the draft WRMP24 preferred programme of options. It has been revised to reflect the revised draft WRMP24. Where relevant, this includes changes to the option assessment text and its inclusion within the main body of the revised Environmental Report.</p>
Historic England HE17	N/A	<p>At present it is somewhat unclear whether the SEA has fully considered the potential for long term / operational impacts on the historic environment as a result of changes to the water environment, water quality and chemistry, water catchment and abstractions. Through sustainable</p>	<p>Comments noted. The SEA has considered the short, medium and long term effects on the environment of the construction and operational effects of the feasible and preferred options, the preferred programme of options, the cumulative effects and reasonable alternatives to the</p>

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		management practices, such as reduced abstraction, there may be an opportunity to deliver benefits, for example by mitigating the risk of climate change or drought on buried archaeology including organic or paleoenvironmental remains.	plan. To permit assessment of the effects on cultural heritage, an SEA objective and four guide questions have been used; two of these guide questions include reference to paleoenvironmental deposits.
Historic England HE18	N/A	While the baseline information contains some discussion of non-designated heritage assets, it is not clear to what extent these have been factored into the assessment of options.	Comment noted. Specific guidance has been developed for what constitutes a significant (major) effect, a moderate effect, a minor effect or a neutral effect for each of the SEA objectives. These 'definitions and thresholds of significance' help to ensure a consistent approach to interpreting the significance of effects and helps the reader understand the decisions made by the assessor. With respect to cultural heritage, when identifying a minor negative effect for example, the following guidance has been referenced, which includes consideration of non-designated heritage assets, "The option will result in the loss of significance of undesignated heritage assets and/or their setting, notwithstanding remedial recording of any elements affected. There will be limited damage to known, undesignated archaeology important sites with a consequent loss of significance only partly mitigated by archaeological investigation." However, given that the purpose of the SEA is to identify, describe and evaluate the likely significant effects of the

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Historic England HE19	NTS/Section 6.2/Section 6.6	<p>HE note that some of the preferred supply options were assessed as having negative effects on the historic environment during construction or operation, while a number of the infrastructure options show significant negative effects during construction (18.27 Pewsey resilience, 52.01 Poole reuse, 55.02 CALM upgrade, 55.06 North grid to South grid, 55.07 Yeovil transfer). Where there are potential impacts on assets that fall within the statutory remit of HE, HE would welcome further engagement to ensure that harm to the historic environment is minimised or mitigated, and that where possible opportunities are taken to secure enhancements.</p>	<p>proposed plan, there remains a balance as to how far such undesignated effects can be considered, given the relevance of designated sites and features to determining the significance of the effects.</p> <p>Comment noted. Paragraph 6.2.14 of the Environmental Report completed to accompany the draft WRMP24 identified that for construction five options (18.27, 52.01, 55.02, 55.06 and 55.07) were identified as having likely significant effects. No significant negative effects were identified for operation. Section 6.6 identified a range of mitigating measures for the likely significant effects identified including those for cultural heritage.</p> <p>The revised draft WRMP24 includes a revised suite of preferred options. These have been subject to revised assessment, including SEA. Where relevant, this includes changes to the option assessment text and its inclusion within the main body of the revised Environmental Report. Further assessment (at the next tier of decision making) will be undertaken as appropriate, and WWSL welcomes the opportunity to engage with Historic England.</p>

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Historic England HE20	N/A	HE note against the landscape objective the potential for negative effects on landscape/townscape, including within Cranborne Chase and West Wiltshire Downs AONBs (options 55.02 and 55.06) and Dorset AONB (55.07) with additional impacts on rural or semi-rural landscapes. Further information is needed in order to understand the implications of these schemes for historic landscapes and landscape character.	The revised draft WRMP24 includes a revised suite of preferred options. These have been subject to revised assessment, including SEA. Where relevant, this includes changes to the option assessment text and its inclusion within the main body of the revised Environmental Report.
Historic England HE21	Section 6.6	It is of concern to HE that the preferred programme as a whole is assessed as having significant negative effects on the historic environment, with no detail provided about any efforts made to minimise/mitigate these harms. Section 6.6 (Mitigation and Enhancement) of the SEA falls short in this regard, suggesting that 'The detail of this mitigation needs to be considered during the planning phases of each of the individual measures if and when they are taken forward for implementation'. This approach may not meet the requirements of Schedule 2 of The Environmental Assessment of Plans and Programmes Regulations 2004, which	Comment noted. Paragraph 1.7.3 of the draft NPS for water resource infrastructure ¹⁵⁸ quoted in the response has been superseded by paragraph 1.6.2 of the published NPS ¹⁵⁹ which states that: <i>"A final published water resources management plan will have been subject to relevant statutory environmental assessments. Information from these assessments may be relevant to inform the detailed site specific assessments, required for a development consent application."</i>

¹⁵⁸ Defra (2018) Draft National Policy Statement for Water Resources Infrastructure. Available online from: https://consult.defra.gov.uk/water/draft-national-policy-statement/supporting_documents/draftnpswaterresourcesinfrastructure.pdf

¹⁵⁹ Defra (2023) National Policy Statement for Water Resources Infrastructure. Available online from:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1150075/E02879931_National_Policy_Statement_for_Water_Resources.pdf

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Respondent/ Ref	SEA Environmental Report Section	Consultee Response	Response/Action
		<p>indicates that Environmental Reports should include: '7. The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme'. Furthermore, as HE has previously mentioned it does not appear adequate in relation to paragraph 1.7.3. of the draft NPS 'Schemes that are included in a final published WRMP will have been assessed to inform suitability and ensure they do not have any unacceptable environmental impacts that cannot be overcome'.</p>	<p>Relevant statutory environmental assessments include SEA, which has been undertaken of the draft and revised draft WRMP24 and includes consideration of cultural heritage and the historic environment. The SEA identifies, describes and evaluates the effects of the draft WRMP24. Section 6.6 of the Environment Report identifies a range of mitigating measures for the likely significant effects identified including those for cultural heritage consistent with Schedule 2 (7) of the SEA Regulations.</p> <p>Where options have been identified, given the strategic nature of the WRMP24 and their timing (in some cases with implementation beyond 2050), there remains some flexibility over design and location, which if included in the preferred option suite, will permit further refinement (either through future plan cycles or through specific scheme development). The approach taken is proportionate to the strategic nature of the plan, evidence based and reflects scoping consultation responses were received.</p> <p>The revised draft WRMP24 includes a revised suite of preferred options. These have been subject to revised assessment, including SEA. Where relevant, this includes changes to the option assessment</p>

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Respondent/ Ref	SEA Environmental Report Section	Consultee Response	Response/Action
			<p>text and its inclusion within the main body of the revised Environmental Report.</p> <p>Once the final WRMP24 has been published, the selected schemes for water resource management will need to be implemented through specific projects, which will be subject to further, more detailed environmental assessment and appraisal and relevant regulatory engagement.</p>
Historic England HE22	Section 6.6	<p>In relation to cultural heritage, section 6.6 of the SEA goes on to state 'The potential for adverse impacts of the settings of cultural heritage assets should be considered early in the design process and any adverse effects minimised, for example through micro-siting/ alternative pipeline routes to avoid designated sites'. Whilst HE welcome the commitment made by this statement, it is important to be aware that heritage impact assessment should not be limited to impacts on settings.</p>	Comment noted.
Historic England HE23	Table 7.1/Section 7.4	<p>Within Table 7.1 (Potential Indicators for Monitoring Effects) HE welcome the inclusion of a historic environment indicator. However, HE suggest an alternative wording for the indicator to better align with heritage guidance and policy, as follows: 'Loss/harm or</p>	<p>Agree.</p> <p>Table 7.1 of the revised Environmental Report containing the SEA of the revised draft WRMP24 has been amended to reflect the suggestion.</p>

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		discovery/conservation/enhancement of built, cultural and natural heritage features. Improved access, understanding and enjoyment of heritage'.	
Historic England HE24	N/A	<p>Conclusions</p> <p>It is HE's view that the importance of the historic environment, and potential for plan proposals to impact on it, are not currently adequately reflected in the dWRMP24 and supporting SEA.</p>	<p>Comment noted.</p> <p>Wessex water's operational area contains a range of internationally important historic environments. The development of the plan, through the application of option screening and best value metrics to inform the selection of options, drawing on the detailed findings of the SEA, which has included consideration of cultural heritage. This has ensured any likely significant effects on the environment have been identified, described and evaluated.</p> <p>Any selected schemes will need to be implemented through specific projects, which will be subject to further, more detailed environmental assessment and appraisal and relevant regulatory engagement. Wessex Water welcome the opportunity to engage with Historic England and any relevant local planning authorities in this process to avoid and minimise any adverse effects and identify opportunities for enhancement of the historic environment.</p>

Appendix C

Review of Plans and Programmes

International / European Plans and Programmes	
Purpose of the Document, including Objectives and Targets relevant to the WRMP and SEA	Relationships and Influences on the WRMP and the SEA
<i>Conservation of Migratory Species (CMS) (1979) The Bonn Convention on the Conservation of Migratory Species of Wild Animals</i>	
<p>The Convention on the Conservation of Migratory Species of Wild Animals (also known as the Bonn Convention or CMS) is an intergovernmental treaty under the United Nations Environment Programme. The convention was signed in 1979 ratified in the UK in 1985.</p> <p>The convention aims to ensure contracting parties work together to conserve terrestrial, marine and avian migratory species and their habitats (on a global scale) by providing strict protection for endangered migratory species.</p> <p>Overarching objectives set for the Parties are:</p> <ul style="list-style-type: none"> • Should promote, co-operate in and support research relating to migratory species; • Shall endeavour to provide immediate protection for migratory species; • Shall endeavour to conclude Agreements covering the conservation and management of migratory species included in Appendix II. <p>Setting targets is the responsibility of member states.</p>	<p>The WRMP should take into account the habitats and species that have been identified under this directive, and should include provision for their protection, preservation and improvement.</p> <p>The SEA assessment framework should include biodiversity, incorporating the importance of conserving migratory species.</p>
<i>Council of Europe (1979) The Convention on the Conservation of European Wildlife and Natural Habitats (The Bern Convention)</i>	
<p>The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) was adopted in Bern, Switzerland in 1979, and came into force in 1982.</p> <p>The principal objectives are:</p> <ul style="list-style-type: none"> • To conserve wild flora and fauna and their natural habitats, especially those species and habitats whose conservation requires the co-operation of several States; • To promote such co-operation. Particular emphasis is given to endangered and vulnerable species, including endangered and vulnerable migratory species; • In order to achieve this the Convention imposes legal obligations on contracting parties, protecting over 500 wild plant species and more than 1000 wild animal species. <p>Targets for Contracting Parties are:</p> <ul style="list-style-type: none"> • Promoting national policies for the conservation of wild flora, wild fauna and natural habitats, with particular attention to endangered and vulnerable species, especially endemic ones, and endangered habitats, in accordance with the provisions of this Convention; • Undertaking in its planning and development policies, and in its measures against pollution, to have regard to the conservation of wild flora and fauna; <p>Promoting education and disseminating general information on the need to conserve species of wild flora and fauna and their habitats.</p>	<p>The WRMP should take into account the habitats and species that have been identified under the Convention, and should include provision for the preservation, protection and improvement of the quality of the environment as appropriate.</p> <p>The SEA assessment framework should incorporate the conservation provisions of the Convention particularly the protection of wild flora, fauna and natural habitats.</p>
<i>Council of Europe (1985) The Convention for the Protection of the Architectural Heritage of Europe (The Granada Convention)</i>	
<p>The main purpose of the convention is to reinforce and promote policies for the conservation and enhancement of Europe's heritage and to foster closer European co-operation in defence of heritage. Recognition that conservation of heritage is a cultural purpose and integrated conservation of heritage is an important factor in the improvement of quality of life.</p>	<p>The SEA assessment framework should include an objective on the conservation and enhancement of heritage and decision making criteria on architectural heritage.</p>

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International / European Plans and Programmes	
Purpose of the Document, including Objectives and Targets relevant to the WRMP and SEA	Relationships and Influences on the WRMP and the SEA
<i>Council of Europe (1992) Convention on the Protection of Archaeological Heritage (The Valetta Convention)</i>	
Agreement that the conservation and enhancement of an archaeological heritage is one of the goals of urban and regional planning policy. It is concerned in particular with the need for co-operation between archaeologists and planners to ensure optimum conservation of archaeological heritage.	The SEA assessment framework should include an objective on the conservation and enhancement of heritage and decision making criteria on archaeological heritage.
<i>Council of Europe (2000), The European Landscape Convention (The Florence Convention) (became binding March 2007)</i>	
The European Landscape Convention was adopted on 20 October 2000 in Florence and came into force on 1 March 2004 (Council of Europe Treaty Series no. 176). It is open for signature by member states of the Council of Europe and for accession by the European Community and European non-member states. The UK Government signed the European Landscape Convention in 2006 and it became binding from March 2007. The aims of the Convention are to promote landscape protection, management and planning, and to organise European co-operation on landscape issues. Responsibility for implementation has been deferred to the signatories. Articles 5 (general measures) and 6 (specific measures) set out measures that the signatories will undertake, e.g. integrating landscape into policies with possible direct or indirect impact on landscape and to introduce instruments aimed at protecting, managing and/or planning the landscape.	The WRMP should take landscape into account. The SEA assessment framework should include an objective on landscape.
<i>Council of Europe (2003) European Soils Charter</i>	
Sets out common principles for protecting soils across the European Union area.	The WRMP should take soils into account. The SEA assessment framework should include an objective on soils.
<i>European Commission (1991) The Nitrates Directive 91/676/EEC</i>	
The Nitrates Directive is designed to reduce water pollution caused by nitrate from agriculture. The directive requires Defra to identify surface or ground waters that are, or could be high in nitrate from agricultural sources. Once a water body is identified as being high in nitrate all land draining to that water is designated a Nitrate Vulnerable Zone. Within these zones, farmers must observe an action programme of measures which include restricting the timing and application of fertilisers and manure and keeping accurate records.	The WRMP should be consistent with the aim to reduce water pollution caused by nitrates from agriculture. The SEA assessment framework should include water quality.
<i>European Commission (1991) Urban Waste Water Treatment Directive 1991/271/EEC</i>	
The aim of the Urban Waste Water Directive is to protect the environment from the adverse effects of waste water discharges. It sets out guidelines and legislation for the collection, treatment and discharge of urban waste water. The Directive was adopted by member states in May 1991 and is transposed into law in England and Wales by The Urban Waste Water Treatment (England & Wales) Regulations 1994 (as amended*). The Regulations require that all significant discharges are treated to at least secondary treatment. They also set standards and deadlines for the provision of sewage systems, the treatment of sewage according to the size of the community served by the sewage treatment works and the sensitivity of receiving waters to their discharges.	The WRMP will need to reflect the guidelines and legislation set out in the directive. The SEA assessment framework should include water quality.
<i>European Commission (1992) The Habitats Directive 1992/43/EEC</i>	
The Habitats Directive seeks to conserve natural habitats. Conservation of natural habitats requires member states to identify special areas of conservation and to maintain where necessary landscape features of importance to wildlife and flora. It is required that each Member State propose a list of sites indicating which natural habitat types and which species the sites host. The information would include a map of the site, its name, location and its extent. The Commission will then establish, in agreement with each	The WRMP should take into account the habitats and species that have been identified under this Directive, and include provision for the preservation, protection and improvement of

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Member State, a draft list of sites of Community importance drawn from the Member States' lists identifying those which host one or more priority natural habitat types or priority species.	the quality of the environment as appropriate. The SEA assessment framework should incorporate sites protected for their nature conservation importance.
European Commission (1998) <i>Drinking Water Directive 1998/83/EC</i>	
The Drinking Water Directive (DWD) concerns the quality of water intended for human consumption. The objective of the DWD is to protect the health of the consumers in the EU and to make sure the water is wholesome and clean. To do this, the DWD sets standards for 48 (microbiological and chemical) parameters that can be found in drinking water. The parameters must be monitored and tested regularly. In principle WHO guidelines for drinking water are used as a basis for the standards in the DWD. While translating the DWD into their own national legislation (transposition of the DWD), the Member States of the European Union can include additional requirements e.g. regulate additional substances that are relevant within their territory or set higher standards. However, Member States are not allowed to set lower standards as the level of protection of human health should be the same within the whole EU. Member States have to monitor the quality of the drinking water supplied to their citizens and of the water used in the food production industry. Member States report at three yearly intervals the monitoring results to the European Commission. Standards constitute legal limits. Sets limits for microbiological and chemical parameters in drinking water. Also gives indicator parameters.	The WRMP should seek to ensure the continuity of a safe and secure drinking water supply and protect or improve drinking water quality where possible. The SEA assessment should consider the effects on water and human health.
European Commission (1999) Directive on the <i>Landfill of Waste 99/31/EC</i>	
The Directive aims at reducing the amount of waste landfilled; promoting recycling and recovery; establishing high standards of landfill practice across the EU, and preventing the shipping of waste from one Country to another. The objective of the Directive is to prevent or reduce as far as possible negative effects on the environment (in particular on surface water, groundwater, soil, air and human health) from the land-filling of waste, by introducing stringent technical requirements for waste and landfills. The Directive requires the reduction of the amount of biodegradable municipal waste sent to landfill to 75% of the total generated in 1995 by 2006, 50% by 2009 and 35% by 2016.	The WRMP should take the effects on waste to landfill into account. The SEA assessment should consider the effects on water, soil, air, human health and waste
European Commission (2000) <i>The Water Framework Directive 2000/60/EC</i>	
The purpose of this Directive is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater and to achieve good qualitative and quantitative status of all water bodies (including marine waters up to one nautical mile from shore).. The framework aims to: <ul style="list-style-type: none"> • Protect any further deterioration and enhance the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems; • Promote sustainable water use based on a long-term protection of available water resources; • Enhance protection and improvement of the aquatic environment, inter alias, through specific measures for the progressive reduction of discharges, emissions and losses of priority substances and the cessation or phasing-out of discharges, emissions and losses of the priority hazardous substances; • Ensure the progressive reduction of pollution of groundwater and prevent its further pollution; • Contribute to mitigating the effects of floods and droughts. 	The WRMP needs to consider the implication of the Directive in terms of sustainable water use, protection and improvement of the aquatic environment, reducing and preventing pollution and mitigating the effects of flood and droughts. The SEA assessment framework should include water quality, water resources, sustainable water use, and biodiversity.
Key targets and indicators relevant to the WRMP and SEA are:	

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<ul style="list-style-type: none"> Achievement of good ecological status and good surface water chemical status by 2015 unless alternative objectives have been identified; Achievement of good ecological potential and good surface water chemical status for heavily modified water bodies and artificial water bodies; Prevention of deterioration, including of each element, from one status class to another; Achievement of water-related objectives and standards for protected areas; Achievement of good groundwater quantitative and chemical status by 2015; Reversal of any significant and sustained upward trends in pollutant concentrations and prevent or limit input of pollutants to groundwater; Achievement of water related objectives and standards for protected areas and contributes to mitigating the effects of flood and droughts. 	
<p>European Commission (2001) <i>Directive on the Assessment of the Effects of Certain Plans and Programmes on the Environment (The SEA Directive) 2001/42/EC</i></p>	
<p>The objective of the SEA Directive is “to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view of contributing towards sustainable development”.</p> <p>Throughout the course of the development of the plan, policy or programme, the aim of SEA is to identify the potential impact of options proposed in the plan in terms of their environmental, economic and social effects. If any adverse effects are identified, these options can then be avoided or proposals modified to manage or mitigate adverse effects.</p>	<p>This directive is the driver for SEA. All topics identified in the SEA Directive should be considered within the scope of the assessment. Need to ensure that the subsequent Environmental Report meets the requirements of Annex I of the SEA Directive.</p>
<p>European Commission (2002) <i>Directive on the Energy Performance of Buildings 2002/91/EC</i></p>	
<p>The European Union Energy Performance of Buildings Directive was published in the Official Journal on the 4th January 2003. The overall objective of the Directive is to <i>promote the improvement of energy performance of buildings within the Community taking into account outdoor climate and local conditions as well as indoor climate requirements and cost effectiveness</i>.</p> <p>The Directive highlights how the residential and tertiary sectors, the majority of which are based in buildings, accounts for 40% of EU energy consumption.</p>	<p>The SEA should highlight any opportunities for new buildings associated with the WRMP to contribute to improved energy performance.</p>
<p>European Commission (2002) <i>The Environment Noise Directive (END) 2002/49/EC</i></p>	
<p>The END aims to “define a common approach intended to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to the exposure to environmental noise”. For that purpose several actions are to be progressively implemented. It furthermore aims at providing a basis the harmful effects, including annoyance, due to the exposure to environmental noise”. For that purpose several actions are to be progressively implemented. It furthermore aims at providing a basis for developing EU measures to reduce noise emitted by major sources, in particular road and rail vehicles and infrastructure, aircraft, outdoor and industrial equipment and mobile machinery.</p> <p>The underlying principles of the Directive are similar to those underpinning other overarching environment policies (such as air or waste), i.e.:</p> <ul style="list-style-type: none"> Monitoring the environmental problem; by requiring competent authorities in Member States to draw up "strategic noise maps" for major roads, railways, airports and agglomerations, using harmonised noise indicators Lden (day-evening-night equivalent level) and Lnight (night equivalent level). These maps will be used to assess the number of people annoyed and sleep-disturbed respectively throughout Europe. Informing and consulting the public about noise exposure, its effects, and the measures considered to address noise, in line with the principles of the Aarhus Convention. 	<p>The WRMP will need to have regard to the requirements of the END.</p> <p>The SEA assessment framework should include for the protection against excessive noise.</p>

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<ul style="list-style-type: none"> Addressing local noise issues by requiring competent authorities to draw up action plans to reduce noise where necessary and maintain environmental noise quality where it is good. The directive does not set any limit value, nor does it prescribe the measures to be used in the action plans, which remain at the discretion of the competent authorities. Developing a long-term EU strategy, which includes objectives to reduce the number of people affected by noise in the longer term, and provides a framework for developing existing Community policy on noise reduction from source. With this respect, the Commission has made a declaration concerning the provisions laid down in article 1.2 with regard to the preparation of legislation relating to sources of noise. 	
<i>European Commission (2004) Environmental Liability Directive 2004/35/EC</i>	
The Directive establishes a framework for environmental liability based on the "polluter pays" principle, with a view to preventing and remedying environmental damage.	The SEA should take account of the need to ensure that proposals in the WRMP avoid causing direct or indirect damage to the aquatic environment or contamination of land that creates a significant risk to human health.
<i>European Commission (2005) Thematic Strategy on Air Pollution</i>	
This strategy supplements legislation. It sets out objectives for air pollution and proposes measures for achieving them by 2020.	The WRMP should be in accordance with the requirements of the strategy. The SEA should take into account the need to improve air quality.
<i>European Commission (2006) The Bathing Waters Directive 2006/7/EC</i>	
<p>The Bathing Waters Directive applies to surface waters that can be used for bathing except for swimming pools and spa pools, confined waters subject to treatment or used for therapeutic purposes and confined waters artificially separated from surface water and groundwater. The Directive is intended to:</p> <ul style="list-style-type: none"> Be based on scientific knowledge on protecting health and the environment, as well as environmental management experience, Provide better and earlier information of citizens about quality of their bathing waters, including logos, Move from simple sampling and monitoring of bathing waters to bathing quality management, and Be integrated into all other EU measures protecting the quality of all our waters (rivers, lakes, ground waters and coastal waters) through the Water Framework Directive. <p>Two main parameters for analysis (intestinal enterococci and escherichia coli) are defined, instead of nineteen in the previous Directive. These parameters will be used to monitor and assess the quality of bathing waters and to classify them. Other parameters could be taken into account, such as the presence of cyanobacteria or microalgae.</p> <p>Member States must monitor the bathing waters every year. The monitoring calendar should provide for at least four samples to be taken per season (except where the season is very short or where there are special geographic constraints). The sampling interval should not be longer than one month. Upon the monitoring results gathered in four years, Member States should assess the bathing waters at the end of every season. A shorter period may be acceptable in some cases.</p> <p>The waters are classified according to their level of quality: poor, sufficient, good or excellent, linked to clear numerical quality standards for bacteriological quality. The category "sufficient" is</p>	The WRMP will need to comply with set limits. The SEA assessment should include a guide question relating to the effects of options on the water quality at designated bathing waters.

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<p>the minimum quality threshold that all Member States should attain by the end of the 2015 season at the latest. Where water is classified as "poor", Member States should take certain management measures, e.g. banning bathing or posting a notice advising against it, providing information to the public, and suitable corrective measures.</p>	
<p>European Commission (2006) <i>Directive on animal health requirements for aquaculture animals and products thereof, and on the prevention and control of certain diseases in aquatic animals 2006/88/EC</i></p>	
<p>The Directive establishes:</p> <ul style="list-style-type: none"> • Animal health requirements for the placing on the market, importation and transit of aquaculture animals and their products; • Minimum measures to prevent diseases in aquaculture animals; • Minimum measures to be taken in response to suspected or established cases of certain diseases in aquatic animals. 	<p>The SEA should take account of the need to maintain or enhance the quality of habitats and biodiversity.</p>
<p>European Commission (2006) <i>Directive on the protection of groundwater against pollution and deterioration 2006/118EC</i></p>	
<p>This Directive establishes specific measures as provided for in Article 17(1) and (2) of Directive 2000/60/EC (Water Framework Directive) in order to prevent and control groundwater pollution. This Directive is designed to prevent and combat groundwater pollution.</p>	<p>The SEA should take account of the need to maintain, protect and improve water quality across the WRMP area.</p>
<p>European Commission (2006) <i>Fresh Water Fish Directive 2006/44/EC</i></p>	
<p>The Directive seeks to protect those fresh water bodies identified by Member States as waters suitable for sustaining fish populations. For those waters, it sets physical and chemical water quality objectives for salmonid waters and cyprinid waters. The Directive is designed to protect and improve the quality of rivers and lakes to encourage healthy fish populations.</p>	<p>The SEA should take account of the need to promote the protection of river and lake water quality in order to maintain and develop suitable environments that will sustain freshwater fish populations.</p>
<p>European Commission (2006) <i>Mining Waste Directive 2006/21/EC</i></p>	
<p>The Directive aims to prevent or reduce as far as possible any adverse effects on the environment, and any resultant risks to human health, brought about as a result of the management of waste from the extractive industries. The Directive covers the management of waste resulting directly from prospecting, extraction, treatment and storage of mineral resources and from quarrying. Operators are required to use Best Available Techniques in the management of waste facilities and the prevention of major accidents.</p>	<p>The WRMP should have regard to the aim to avoid adverse effects from extractive waste. The SEA assessment framework should include consideration of waste.</p>
<p>European Commission (2006) <i>Thematic Strategy for Soil Protection</i></p>	
<p>The <i>Thematic Strategy for Soil Protection</i> consists of a Communication from the Commission to the other European Institutions, a proposal for a framework Directive (a European law), and an Impact Assessment. It sets out an EU strategy for soil protection with an overall objective of the protection and sustainable use of soil, based on the following guiding principles: (1) Preventing further soil degradation and preserving its functions:</p> <ul style="list-style-type: none"> • when soil is used and its functions are exploited, action has to be taken on soil use and management patterns; and • when soil acts as a sink/receptor of the effects of human activities or environmental phenomena, action has to be taken at source. <p>(2) Restoring degraded soils to a level of functionality consistent at least with current and intended use, thus also considering the cost implications of the restoration of soil. The strategy proposes introducing a framework Directive setting out common principles for protecting soils across the EU, with Member States deciding how best to protect soil and how use it in a sustainable way on their own territory.</p>	<p>The WRMP should take potential effects on soil into account. The SEA assessment framework should include soils.</p>
<p>European Commission (2007) <i>The Eel Directive 2007/1100/EC</i></p>	

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<p>The Eel Directive establishes measures for the recovery of the stock of European eel and requires member states to produce Eel management plans for each catchment.</p>	<p>The WRMP should ensure that there are no adverse impacts on eel as a result of drainage and wastewater management measures.</p>
<p>European Commission (2007) <i>Floods Directive 2007/60/EC</i></p>	
<p>The Directive's aim is to reduce and manage the risks that floods pose to human health, the environment, cultural heritage and economic activity. The Directive shall be carried out in coordination with the Water Framework Directive, notably by flood risk management plans and river basin management plans being coordinated, and through coordination of the public participation procedures in the preparation of these plans.</p>	<p>The WRMP should take account of the flood risk management plans. The SEA assessment framework should include flood risk.</p>
<p>European Commission (2008) <i>Ambient Air Quality and Cleaner Air for Europe Directive 2008/50/EC</i></p>	
<p>The Directive:</p> <ul style="list-style-type: none"> • defines and establishes objectives for ambient air quality to avoid, prevent or reduce harmful effects on human health and the environment as a whole; • assesses the ambient air quality in Member States using common methods and criteria; • obtains information on ambient air quality in order to help combat air pollution and nuisance and to monitor long-term trends and improvements resulting from national and Community measures; • ensures that such information on ambient air quality is made available to the public; • seeks to maintain air quality where it is good and improving it in other cases; and • promotes increased cooperation between the Member States in reducing air pollution. 	<p>The WRMP should contribute towards achieving air quality standards set out in the Directive. The SEA assessment framework should include air quality.</p>
<p>European commission (2008) <i>Directive on Waste (Directive 75/442/EEC, 2006/12/EC 2008/98/EC as amended)</i></p>	
<p>The essential objective of all provisions relating to waste management should be the protection of human health and the environment against harmful effects caused by the collection, transport, treatment, storage and tipping of waste. Some key objectives include:</p> <ul style="list-style-type: none"> • The recovery of waste and the use of recovered materials as raw materials should be encouraged; • Member States should, in addition to taking responsible action to ensure the disposal and recovery of waste, take measures to restrict the production of waste; • It is important for the Community as a whole to become self-sufficient in waste disposal and desirable for Member States individually to aim at such self-sufficiency; • Waste management plans should be drawn up in the Member States; • Movements of waste should be reduced; • Ensure a high level of protection and effective control; • Subject to certain conditions, and provided that they comply with environmental protection requirements, some establishments which process their waste themselves or carry out waste recovery may be exempted from permit requirements; • That proportion of the costs not covered by the proceeds of treating the waste must be defrayed in accordance with the 'polluter pays' principle. 	<p>The WRMP should seek to ensure the protection of human health and the environment in relation to waste management. The SEA assessment should include objectives on the protection of human health and the environment.</p>
<p>European Commission (2008) <i>Environmental Quality Standards Directive 2008/105/EC</i></p>	
<p>The Directive aims to control the concentration of certain substances which pose a risk to the aquatic environment. The 33 'priority substances' addressed by the Directive are defined by the Water Framework Directive (2000/60/EC), including cadmium, lead, mercury, nickel, benzene and polyaromatic hydrocarbons. The Directive sets thresholds of concentration that must not be exceeded, with limits to</p>	<p>The assessment framework should include assessment criteria relating to water quality.</p>

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<p>average values over a year to ensure long-term water quality and maximum allowable concentrations to limit short term pollution peaks. Member States must comply with the water quality standards and record an inventory of emissions and discharges of all substances in the Directive.</p>	
<p>European Commission (2008) <i>Marine Strategy Framework Directive 2008/56/EC</i></p>	
<p>The Directive sets out a framework for an ecosystem-based approach to the management of human activities which supports the sustainable use of marine goods and services. The overarching goal of the Directive is to achieve 'Good Environmental Status' (GES) by 2020 across Europe's marine environment. The Directive establishes four European Marine Regions, based on geographical and environmental criteria. The North East Atlantic Marine Region is divided into four subregions, with UK waters lying in two of these (the Greater North Sea and the Celtic Seas).</p> <p>Each Member State is required to develop a marine strategy for their waters, in coordination with other countries within the same marine region or subregion. Marine strategies must be implemented to protect and conserve the marine environment, prevent its deterioration, and, where practicable, restore marine ecosystems in areas where they have been adversely affected. The marine strategies must contain:</p> <ul style="list-style-type: none"> • An initial assessment of the current environmental status of that Member State's marine waters; • A determination of what Good Environmental Status means for those waters; • Targets and indicators designed to show whether a Member State is achieving GES; • A monitoring programme to measure progress towards GES; • A programme of measures designed to achieve or maintain GES. <p>The Directive also requires Marine Protected Areas (MPAs) to be established to support the achievement of GES.</p>	<p>The SEA assessment framework should incorporate assessment criteria relating to the quality of the marine environment.</p>
<p>European Commission (2009) <i>Directive on the Conservation of Wild Birds 2009/147/EC</i> (codified version of Council Directive 79/409/EEC as amended)</p>	
<p>The Directive provides a framework for the conservation and management of, and human interactions with, wild birds in Europe. The main provisions of the Directive include:</p> <ul style="list-style-type: none"> • The maintenance of the populations of all wild bird species across their natural range (Article 2) with the encouragement of various activities to that end (Article 3). • The identification and classification of Special Protection Areas (SPAs) for rare or vulnerable species listed in Annex I of the Directive, as well as for all regularly occurring migratory species, paying particular attention to the protection of wetlands of international importance (Article 4). (Together with Special Areas of Conservation designated under the Habitats Directive, SPAs form a network of European protected areas known as Natura 2000). • The establishment of a general scheme of protection for all wild birds (Article 5). • Restrictions on the sale and keeping of wild birds (Article 6). • Specification of the conditions under which hunting and falconry can be undertaken (Article 7). (Huntable species are listed on Annex II of the Directive). • Prohibition of large-scale non-selective means of bird killing (Article 8). • Procedures under which Member States may derogate from the provisions of Articles 5-8 (Article 9) — that is, the conditions under which permission may be given for otherwise prohibited activities. • Encouragement of certain forms of relevant research (Article 10 and Annex V). <p>Requirements to ensure that introduction of non-native birds do not threatened other biodiversity (Article 11).</p>	<p>The WRMP should seek to protect and enhance biodiversity, particularly designated sites. The SEA assessment framework should include objectives, indicators and targets that cover biodiversity.</p>
<p>European Commission (2009) <i>Promotion of the use of energy from renewable sources Directive 2009/28/EC</i></p>	

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<p>This Directive establishes a common framework for the use of energy from renewable sources in order to limit greenhouse gas emissions and to promote cleaner transport. It encourages energy efficiency, energy consumption from renewable sources and the improvement of energy supply.</p> <p>The Member States are to establish national action plans which set the share of energy from renewable sources consumed in transport, as well as in the production of electricity and heating, for 2020. These action plans must take into account the effects of other energy efficiency measures on final energy consumption (the higher the reduction in energy consumption, the less energy from renewable sources will be required to meet the target). These plans will also establish procedures for the reform of planning and pricing schemes and access to electricity networks, promoting energy from renewable sources.</p> <p>Each Member State has a target calculated according to the share of energy from renewable sources in its gross final consumption for 2020. The UK is required to source 15 per cent of energy needs from renewable sources, including biomass, hydro, wind and solar power by 2020. From 1 January 2017, biofuels and bioliquids share in emissions savings should be increased to 50%.</p>	<p>The WRMP should seek to contribute towards increasing the proportion of energy from renewable energy sources.</p> <p>The SEA assessment framework should include consideration of use of energy from renewable energy sources.</p>
<p>European Commission (2010) <i>Energy 2020 - A Strategy for Competitive, Sustainable and Secure Energy</i></p>	
<p>EU energy and climate goals have been incorporated into the Europe 2020 Strategy for smart, sustainable and inclusive growth. The energy strategy includes five priorities for Europe:</p> <ol style="list-style-type: none"> 1. Achieving an energy-efficient Europe; 2. Building a truly pan-European integrated energy market; 3. Empowering consumers and achieving the highest level of safety and security; 4. Extending Europe's leadership in energy technology and innovation; 5. Strengthening the external dimension of the EU energy market. 	<p>The SEA assessment framework should include criteria relating to energy where appropriate</p>
<p>Energy 2020 is part of Resource-Efficient Europe, one of the seven key initiatives of Europe 2020.</p>	
<p>European Commission (2010) <i>Europe 2020 - A Strategy for Smart, Sustainable and Inclusive Growth</i></p>	
<p>Europe 2020 is the EU's ten-year growth strategy. It aims to change the EU's growth model and create the conditions for growth that is smarter, more sustainable and more inclusive. It contains seven 'flagship initiatives' to provide a framework for innovation, the digital economy, employment, youth, industrial policy, poverty, and resource efficiency.</p> <p>There are also five key target areas for the EU to achieve by 2020:</p> <ol style="list-style-type: none"> 1. Employment: 75% of the 20-64-year-olds to be employed. 2. R&D: 3% of the EU's GDP to be invested in R&D. 3. Climate change and energy sustainability: greenhouse gas emissions 20% (or even 30%, if the conditions are right) lower than 1990; 20% of energy from renewable; 	<p>The SEA assessment framework should include criteria relating to employment, R&D, climate change and poverty where relevant.</p>

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<p>20% increase in energy efficiency.</p> <p>4. Education: reducing the rates of early school leaving below 10%; at least 40% of 30-34- year-olds completing third level education.</p> <p>Fighting poverty and social exclusion: at least 20 million fewer people in or at risk of poverty and social exclusion.</p>	
European Commission (2010) <i>Industrial Emissions Directive (integrated pollution prevention and control) 2010/75/EU</i>	
This Directive brings together the IPPC Directive (2008/1/EC) and six other Directives on titanium dioxide, VOCs and waste incineration, with the aim of reducing pollutant emissions. It covers industries with high polluting potential such as energy, production and processing of metals, minerals, chemicals, waste management and rearing of animals. It defines the obligations to be met by industrial activities with a major pollution potential. This includes establishing a permit procedure, requirements for Best Available Techniques (BAT) and setting out requirements for discharges.	The SEA assessment framework should include criteria that ensure the protection of the environment through the prevention of pollution.
European Commission (2011) <i>Directives on Environmental Impact Assessment (Codified Directive 2011/92/EU and Revised Directive 2014/52/EU)</i>	
The Directive, as enacted in 1985, amended, codified in 2011 and revised in 2014, sets out procedural requirements for certain development proposals to undergo an Environmental Impact Assessment (EIA) before being granted consent through the town and country planning or other consenting regimes. The UK Government is obliged to transpose the Revised EIA Directive by May 2017.	The SEA should recognise that certain development proposals require an EIA to be undertaken, resulting in the identification of any likely significant environmental effects and associated mitigation measures.
European Commission (2011) <i>A Resource- Efficient Europe- Flagship Initiative Under the Europe 2020 Strategy</i> , Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions (COM 2011/21)	
This flagship initiative aims to create a framework for policies to support the shift towards a resource-efficient and low-carbon economy which will help to: <ul style="list-style-type: none"> • Boost economic performance while reducing resource use; • Identify and create new opportunities for economic growth and greater innovation and boost the EU's competitiveness; • Ensure security of supply of essential resources; and • Fight against climate change and limit the environmental impacts of resource use. 	The WRMP should seek opportunities to ensure reductions in resource use. The SEA framework should include objectives relating to resource use.
European Commission (2011) <i>A Roadmap for Moving to a Competitive Low Carbon Economy in 2050</i>	
The EU already has short term targets in place to reduce its emissions to 20% below 1990 levels by 2020; to increase the share of renewable energy to 20%; and to make a 20% improvement in energy efficiency. The 2050 roadmap looks beyond 2020 at longer term objectives. The roadmap suggests that by 2050, the EU should cut its emissions to 80% below 1990 levels through domestic reductions alone. It sets out milestones which form a cost-effective pathway to this goal - reductions of 40% by 2030 and 60% by 2040. It also shows how the main sectors responsible for Europe's emissions - power generation, industry, transport, buildings and construction, as well as agriculture - can make the transition to a low-carbon economy most cost-effectively.	The WRMP should seek to contribute to the reduction of the amount of carbon produced as much as possible and help towards achievement of the carbon reduction objectives. The SEA should have an objective relating to the need to reduce greenhouse gas emissions.
European Commission (2012) <i>A Blueprint to Safeguard Europe's Water Resources</i>	
This strategy aims to ensure that enough good quality water is available to meet the needs of people, the economy and the environment. The strategy includes: Improving implementation of current EU water policy; Increasing the integration of water policy objectives into other relevant policy areas such as agriculture, fisheries, renewable energy, transport and the Cohesion and	The commitment to conserving biological diversity must be considered in any options and the SEA should seek to promote

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Structural Funds; and Filling the gaps of the current framework, particularly in relation to the tools needed to increase water efficiency.	the protection and enhancement of biodiversity
European Commission (2012) <i>Energy Efficiency Directive 2012/27/EU as amended by Directive (EU) 2018/2002</i>	
<p>The 2012 Directive establishes a set of binding measures to help the EU reach its 20% energy efficiency target by 2020. Under the Directive, all EU countries are required to use energy more efficiently at all stages of the energy chain from its production to final consumption.</p> <p>Specific measures relate to:</p> <ul style="list-style-type: none"> energy distributors achieving 1.5% energy savings per year through energy efficiency measures; improving the efficiency of heating systems, installing double glazed windows or insulating roofs; purchasing energy efficient buildings, products and services, and performing energy efficient renovations; access to data on consumption; large companies to audit energy consumption (implemented in the UK through the Energy Savings Opportunity Scheme Regulations 2014); national incentives for SMEs to undergo energy audits; and monitoring efficiency levels in new energy generation capacities. <p>The new amending Directive on Energy Efficiency (2018/2002) was agreed to update the policy framework to 2030 and beyond.</p> <p>The key element of the amended directive is a headline energy efficiency target for 2030 of at least 32.5%. The target, to be achieved collectively across the EU, is set relative to the 2007 modelling projections for 2030.</p> <p>In absolute terms, this means that EU energy consumption should be no more than 1273 Mtoe (million tonnes of equivalent) of primary energy and/or no more than 956 Mtoe of final energy. After the UK no longer applies EU law (following its withdrawal from the EU), the equivalent target should be no more than 1128 Mtoe of primary energy and no more than 846 Mtoe of final energy.</p> <p>The directive allows for a possible upward revision in the target in 2023, in case of substantial cost reductions due to economic or technological developments. It also includes an extension to the energy savings obligation in end use, introduced in the 2012 directive. Under the amending directive, EU countries will have to achieve new energy savings of 0.8% each year of final energy consumption for the 2021-2030 period</p> <p>Other elements in the amended directive include:</p> <ul style="list-style-type: none"> stronger rules on metering and billing of thermal energy by giving consumers - especially those in multi-apartment building with collective heating systems - clearer rights to receive more frequent and more useful information on their energy consumption, also enabling them to better understand and control their heating bills requiring Member States to have in place transparent, publicly available national rules on the allocation of the cost of heating, cooling and hot water consumption in multi-apartment and multi-purpose buildings with collective systems for such services monitoring efficiency levels in new energy generation capacities updated primary energy factor (PEF) for electricity generation of 2.1 (down from the current 2.5) 	<p>The WRMP should seek to contribute towards targets for energy efficiency.</p> <p>The SEA assessment framework should include consideration of energy consumption and efficiency.</p>

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<ul style="list-style-type: none"> a general review of the Energy Efficiency Directive (required by 2024). 	
European Commission (2013) <i>Towards Social Investment for Growth and Cohesion 2014-2020</i>	
The Communication aims to directing Member States' policies towards social investment throughout life, with a view to ensuring the adequacy and sustainability of budgets for social policies. It also provides guidance to help reach the Europe 2020 targets by establishing a link between social policies, the reforms to reach the Europe 2020 targets and the relevant EU funds.	The WRMP should have regard of the Europe 2020 targets.
European Commission (2014) <i>The EU Regulation on invasive alien (non-native) species 1143/2014/EU</i>	
This Regulation seeks to address the problem of invasive alien species in a comprehensive manner so as to protect native biodiversity and ecosystem services, as well as to minimize and mitigate the human health or economic impacts that these species can have.	The SEA assessment framework should include guide questions relating to invasive species
European Commission (2014) <i>A Policy Framework for Climate and Energy in the Period from 2020 to 2030</i>	
<p>The 2030 climate and energy framework was adopted in 2014 and builds on the 2020 targets. It sets three key targets for 2030:</p> <ul style="list-style-type: none"> at least 40% cuts in greenhouse gas emissions (from 1990 levels); at least 27% share for renewable energy; and at least 27% improvement in energy efficiency. <p>The greenhouse gas emissions and renewable energy targets are binding, while the energy efficiency target will be reviewed in 2020.</p>	<p>The WRMP should support longer term targets for reducing greenhouse gas emissions, increasing renewable energy and energy efficiency.</p> <p>The SEA assessment framework should include the consideration of energy and greenhouse gas emissions.</p>
European Commission (2015) <i>'Closing the loop - An EU Action Plan for the Circular Economy' policy package</i>	
This document sets out actions to implement the European Commission's long-term vision of significantly reducing waste landfilling and increasing recycling.	<p>The SEA should consider opportunities for the WRMP to contribute/enable the circular economy.</p> <p>The SEA assessment framework should contain an objective/guide question relating to material/resource use and waste.</p>
European Commission (2016) <i>National Emissions reduction Commitments (NEC) Directive 2016/2284/EU</i>	
<p>The National Emission reduction Commitments Directive sets national emission reduction commitments for Member States and the EU for five important air pollutants: nitrogen oxides (NOx), non-methane volatile organic compounds (NMVOCs), sulphur dioxide (SO2), ammonia (NH3) and fine particulate matter (PM2.5).</p> <p>The NEC Directive highlights the importance of Member States regularly reporting air pollutant emission inventories for assessing progress in reducing air pollution in the EU and for ascertaining whether Member States are in compliance with their commitments.</p> <p>The directive introduces a number of new reporting requirements for Member States. These include annual information on emissions of a number of pollutants:</p> <ul style="list-style-type: none"> the five main air pollutants NOx, NMVOCs, SO2, NH3 and PM2.5 as well as carbon monoxide (CO); in addition to PM2.5, also PM10 particulate matter and, if available, black carbon (BC) and total suspended particulate matter (TSP); 	<p>The WRMP should seek to reduce the emissions of the pollutants listed under the directive, where possible.</p> <p>The SEA assessment framework should include an objective and guide questions relating to air pollution/pollutant emissions.</p>

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<ul style="list-style-type: none"> heavy metals cadmium (Cd), lead (Pb) and mercury (Hg) and, if available, the additional heavy metals arsenic, chromium, copper, nickel, selenium and zinc); <p>persistent organic pollutants (POPs) including selected polycyclic aromatic hydrocarbons (PAHs), dioxins and furans, polychlorinated biphenyls (PCBs) and hexachlorobenzene (HCB).</p>	
<i>European Commission (2020) Biodiversity strategy for 2030</i>	
<p>The EU's biodiversity strategy for 2030 is a comprehensive, ambitious and long-term plan to protect nature and reverse the degradation of ecosystems. The strategy aims to put Europe's biodiversity on a path to recovery by 2030, and contains specific actions and commitments. The strategy contains specific commitments and actions to be delivered by 2030.</p> <ul style="list-style-type: none"> Establishing a larger EU-wide network of protected areas on land and at sea Launching an EU nature restoration plan Introducing measures to enable the necessary transformative change Introducing measures to tackle the global biodiversity challenge. 	<p>The WRMP should seek to protect and enhance biodiversity, particularly designated sites. The SEA assessment framework should include objectives, indicators and targets that cover biodiversity.</p>
<i>European Commission (2022) Eighth Environmental Action Programme</i>	
<p>The 8th EAP anchors the Member States' and Parliament's commitment to environmental and climate action until 2030, guided by a long-term vision to 2050 of wellbeing for all, while staying within the planetary boundaries.</p> <p>The agreed 8th EAP has six priority objectives related to climate neutrality, climate adaptation, circular economy, zero pollution, protecting and restoring biodiversity, and reducing environmental and climate pressures related to production and consumption. In addition, the programme sets out an enabling framework and a monitoring framework to measure progress towards the required systemic change.</p>	<p>The SEA assessment framework should, where relevant, reflect the objectives of the proposal for the programme.</p>
<i>European Commission (2021) EU strategy on adaptation to climate change</i>	
<p>The strategy sets out how the European Union can adapt to the unavoidable impacts of climate change and become climate resilient by 2050.</p> <p>The Strategy has four principle objectives:</p> <ul style="list-style-type: none"> to make adaptation smarter; to make adaption swifter; to make adaption more systemic, and; to step up international action on adaptation to climate change. 	<p>The WRMP should seek to contribute towards climate change adaption. The SEA assessment framework should include an objective relating to climate change and consideration of climate change adaption.</p>
<i>ICOMOS (2011) Guidance on Heritage Impact Assessments for Cultural World Heritage Properties</i>	
<p>This document provides guidance on the process of Commissioning Heritage Impact Assessments (HIAs) for World Heritage properties in order to evaluate effectively the impact of potential development on the Outstanding Universal Value (OUV) of properties. The guidance is addressed at managers, developers, consultants and decision-makers and is also intended to be relevant to the World Heritage Committee and States Parties. The concept of OUV underpins the whole World Heritage Convention and all activities associated with properties inscribed on the List.</p>	<p>The SEA Framework should include an objective on the conservation and enhancement of heritage.</p>
<i>IUCN (2013) World Heritage Advice Note: Environmental Assessment</i>	
<p>This Advice Note provides States Parties and other stakeholders with guidance on how to identify, evaluate, avoid and mitigate potential impacts of development proposals on World Heritage values, before decisions are taken. It provides guidance on integrating natural World Heritage Sites within Environmental Assessments. It includes a set of World Heritage Impact Assessment Principles that can be applied to all types of environmental Assessments, a list of</p>	<p>The WRMP should seek to contribute towards the protection of World Heritage Sites.</p>

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<p>key questions to ask concerning World Heritage during the assessment as well as step-by-step guidance.</p>	<p>The SEA assessment framework should include objectives and guide questions relating to the conservation of World Heritage Sites. The SEA assessment should also reflect/incorporate the principles of the guidance, where relevant.</p>
<p><i>UNEP (1973) Convention on International Trade in Endangered Species of Wild Fauna and Flora</i></p>	
<p>CITES is an international agreement between governments which aims to ensure that international trade in wild animals and plants does not threaten their survival. It subjects international trade to certain controls, and all import, export, re-export and introduction (by sea) of species covered by the Convention has to be authorized through a licensing system. Species are listed in three Appendices according to the degree of protection needed, with differing controls for each.</p>	<p>The WRMP should seek to ensure the protection of vulnerable species.</p> <p>The SEA assessment framework should incorporate the protection of animal and plant species.</p>
<p><i>UNESCO (1971) Ramsar Convention on Wetlands of International Importance</i></p>	
<p>The Convention on Wetlands of International Importance was signed in Ramsar, Iran in 1971. It is an intergovernmental treaty which provides the framework for national action and international co-operation for the conservation and wise use of wetlands and their resources, as a means to achieving sustainable development throughout the world.</p> <p>The original emphasis was on the conservation and wise use of wetlands primarily to provide habitat for waterbirds, however over the years the Convention has broadened its scope to incorporate all aspects of wetland conservation and wise use, recognising wetlands as ecosystems that are extremely important for biodiversity conservation and for the well-being of human communities.</p> <p>‘The Convention’s mission is the conservation and wise use of all wetlands through local, regional and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world’ (Ramsar COP8, 2002).</p> <p>The Fourth Ramsar Strategic Plan 2016-2024 has been adopted to provide guidance on how efforts for implementing the Convention on Wetlands should be focussed. The strategy has three strategic goals and one operational goal:</p> <ul style="list-style-type: none"> • Strategic Goal 1: Addressing the Drivers of Wetland Loss and Degradation • Strategic Goal 2: Effectively Conserving and Managing the Ramsar Site Network • Strategic Goal 3: Wisely Using All Wetlands • Operational Goal 1: Enhancing Implementation <p>The plan also contains 19 targets which fall under each of the goals. Implementing each of these will also contribute to the achievement of the Sustainable Development Goals (SDGs) and targets.</p>	<p>The WRMP should ensure the protection and wise use of wetlands.</p> <p>The SEA assessment framework should incorporate the protection of wetland sites listed under the Ramsar convention.</p>
<p><i>UNESCO (1972) Convention Concerning the Protection of the World Cultural and Natural Heritage</i></p>	
<p>The Convention defines the kind of natural or cultural sites which can be considered for inscription on the World Heritage List. In addition to this, countries are required to:</p> <ul style="list-style-type: none"> • Ensure that measures are taken for the protection, conservation and presentation of cultural and natural heritage • Adopt a general policy that gives cultural and natural heritage a function in the life of the community • Integrate the protection of heritage into comprehensive planning programmes 	<p>The WRMP should seek to protect cultural heritage sites.</p> <p>The SEA assessment framework should include an objective on heritage and archaeological issues.</p>
<p><i>UNESCO (2001) Convention on the Protection of Underwater Cultural Heritage</i></p>	
<p>The Convention sets a common standard for the protection of submerged cultural heritage, with a view to preventing its being looted or destroyed. The Convention sets out basic principles for the protection of underwater cultural heritage; provides a detailed State cooperation system;</p>	<p>The WRMP should seek to protect cultural heritage sites.</p>

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and provides widely recognised practical rules for the treatment and research of underwater cultural heritage. This includes obligations to preserve such heritage, a preference for in situ preservation, and no commercial exploitation.	The SEA assessment framework should include an objective relating to cultural heritage.
<i>United Nations (1992) Convention on Biological Diversity (The Rio Convention)</i>	
The Convention on Biodiversity called for the development and enforcement of national strategies and associated action plans to identify, conserve and protect existing biological diversity, and to enhance it wherever possible. In the UK, the UK Biodiversity Action Plan was then established to conserve and enhance biodiversity in the UK through the use of Habitats and Species Action Plans to help the most threatened species and habitats to recover and to contribute to the conservation of global biodiversity.	The WRMP should seek to protect and enhance biodiversity. The SEA assessment framework should include protection and enhancement of biodiversity
<i>United Nations (1997) The Kyoto Protocol to the UN Framework Convention on Climate Change</i>	
The Kyoto Protocol was adopted in Kyoto, Japan, on 11 December 1997 and entered into force on 16 February 2005. It is an international agreement linked to the United Nations Framework Convention on Climate Change. The major feature of the Kyoto Protocol is that it sets binding targets for industrialized countries for reducing greenhouse gas (GHG) emissions. These amounted to an average of five per cent against 1990 levels in the first commitment period (2008 to 2012). The Protocol is planned to be extended to 2020 (the Kyoto second commitment period), pending ratification of the Doha Agreement.	The WRMP should aim to reduce greenhouse gas emissions. The SEA assessment framework should include objectives/guide questions related to reducing greenhouse gas emissions.
<i>United Nations Economic Commission for Europe (1998), Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (The Aarhus Convention)</i>	
To contribute to the protection of present and future generations to live in an environment adequate to his or her health and well-being. This will be achieved through each Party subject to the convention guaranteeing the rights of access to information, public participation in decision-making, and access to justice in environmental matters in accordance with the provisions of this Convention. To establish and maintain a clear, transparent and consistent framework to implement the provisions of this Convention. This will be achieved through each Party taking the necessary legislative, regulatory and other measures, including measures to achieve compatibility between the provisions implementing the information, public participation and access-to-justice provisions in this Convention, as well as proper enforcement measures. Responsibility for implementation is deferred to the member states.	The development of the WRMP needs to be a transparent process. The SEA should show a strong sense of safeguarding the lives of future generations and ensure that enough time is provided for consultation on the SEA documents in line with the Aarhus convention of establishing and maintaining a transparent clear framework.
<i>United Nations (2002) The World Summit on Sustainable Development</i>	
The World Summit resulted in the Johannesburg Declaration on Sustainable Development and a Plan of Implementation. The declaration reaffirms principles already agreed upon at the Rio Earth Summit UNCED in 1992 and the UN Millennium Summit in 1999. It recognises that poverty eradication is a key condition for sustainable development and addresses issues such as cultural diversity, patterns of production and consumption, health issues, armed conflicts, the new dimension created by globalisation, gender issues and financing for development. The implementation plan sets out actions to achieve sustainable development such as poverty eradication, changing unsustainable patterns of consumption and production, protecting and managing the natural resource base of economic and social development, sustainable development in a globalizing world and health and sustainable development. Sustainable development in England is delivered through the sustainable development strategy, Securing the Future, and in Wales through One Wales: One Planet, The Sustainable Development Scheme of the Welsh Assembly Government.	The WRMP should promote sustainable development. The SEA should help to deliver sustainable development through the balanced assessment of the WRMP.
<i>United Nations (2016) The Paris Agreement</i>	
The Paris Agreement was adopted at the 2015 UN Climate Change Conference, which aims to limit global temperature rises to 2 degrees, and to pursue efforts to limit the temperature increase even further to 1.5 degrees. It was adopted by 195 countries at the Conference, and came into force in November 2016, following ratification by sufficient parties.	The WRMP should aim to reduce greenhouse gas emissions.

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	The SEA assessment framework should include greenhouse gas emissions.
United Nations Framework Convention on Climate Change (UNFCCC) (2011) <i>The Cancun Agreements</i>	
<p>The Cancun Agreements were a set of significant decisions by the international community to address the long-term challenge of climate change collectively and comprehensively over time, and to take concrete action immediately to speed up the global response to it.</p> <p>The agreements, reached on December 11 in Cancun, Mexico, at the 2010 United Nations Climate Change Conference, represented key steps forward in capturing plans to reduce greenhouse gas emissions, and to help developing nations protect themselves from climate impacts and build their own sustainable futures.</p> <p>The Cancun Agreements' main objectives cover:</p> <ul style="list-style-type: none"> • Mitigation • Transparency of actions • Technology • Finance • Adaptation • Forests • Capacity building 	<p>The WRMP should aim to reduce greenhouse gas emissions and support climate change mitigation and adaption.</p> <p>The SEA assessment framework should include greenhouse gas emissions and climate change.</p>
World Commission on Environment and Development (1987) <i>Our Common Future (The Brundtland Report)</i>	
<p>The Brundtland Report is concerned with the world's economy and its environment. The objective is to provide an expanding and sustainable economy while protecting a sustainable environment. The Report was a call by the United Nations:</p> <ul style="list-style-type: none"> • to propose long-term environmental strategies for achieving sustainable development by the year 2000 and beyond; • to strengthen co-operation among developing countries and between countries at different stages of economic and social development to achieve common and mutually supportive objectives which take account of the interrelationships between people, resources, environment and development; • to consider ways and means by which the international community can deal more effectively with environment concerns; and • to help define shared perceptions of long-term environmental issues and the appropriate efforts needed to deal successfully with the problems of protecting and enhancing the environment, a long term agenda for action during the coming decades, and aspirational goals for the world community. 	<p>The SEA and WRMP should seek to contribute to sustainable development.</p>
World Health Organisation (2004) <i>Children's Environment and Health Action Plan for Europe</i>	
<p>The action plan aims to address the causes of environment-related diseases in children, including the state of the physical environment, socio-economic conditions and behaviour. Key actions include:</p> <ul style="list-style-type: none"> • primary prevention, i.e. policies, programmes and plans aimed at improving the state of the physical environment (air, water, soil, noise), in particular through the integration of children's needs into housing, transport, infrastructure and planning; • equity, i.e. giving priority to protection of children at highest risk, and particularly of children who are neglected, abandoned, disabled, institutionalized or exploited, by improving access to preventive health and social protection services; • poverty reduction, i.e. policies addressing the multidimensional aspects of poverty among children; • health promotion, i.e. actions aimed at preventing and reducing exposures to environmental health hazards by adopting healthy lifestyles, achieving sustainable consumption patterns and helping to create healthy and enabling human settlements. 	<p>The WRMP should have regard to the requirements of the Action Plan.</p> <p>The SEA assessment framework should include for the protection of human health and vulnerable members of the community.</p>

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<i>BEIS (2011) National Policy Statements for Energy Infrastructure</i>	
<p>The energy National Policy Statements (NPSs) set out national policy against which proposals for major energy projects will be assessed and decided on by the Infrastructure Planning Commission. The following six NPSs have been designated:</p> <ul style="list-style-type: none"> - Overarching NPS for Energy (EN1); - Fossil Fuel Electricity Generating Infrastructure NPS (EN2); - Renewable Energy Infrastructure NPS (EN3) ; - Gas Supply Infrastructure & Gas and Oil Pipelines NPS (EN4); - Electricity Networks Infrastructure NPS (EN5); - Nuclear Power Generation NPS (EN6). <p>The Overarching NPS for Energy sets out that the purpose of the NPSs is to develop a clear, long-term policy framework which facilitates investment in the necessary new infrastructure (by the private sector) and in energy efficiency. The NPS highlights that the construction, operation and decommissioning of this infrastructure can lead to increased demand for water, involve discharges to water and cause adverse ecological effects resulting from physical modifications to the water environment. The NPSs expect applicants to undertake an assessment of the existing status of, and impacts of the proposed project on, water quality, water resources and physical characteristics of the water environment.</p> <p>The NPSs reiterate and are underpinned by the target to cut greenhouse gas emissions by at least 80% by 2050, compared to 1990 levels.</p>	<p>The WRMP may need to consider the potential impact of major energy proposals drainage and wastewater management in the plan area.</p> <p>The SEA should consider the cumulative effects of the WRMP and any major energy proposals.</p>
<i>BEIS (2013) UK Renewable Energy Roadmap</i>	
<p>The Renewable Energy Roadmap outlines the UK's framework for delivering 15% of energy demand from renewable sources by 2020 (as mandated by the EU Renewable Energy Directive). Although starting from a low-level of renewable generation, eight technologies were identified that have the potential to generate 90% of the renewable target by 2020. These are: onshore wind, offshore wind, marine energy, biomass electricity, biomass heat, ground source and air source heat pumps and renewable transport.</p> <p>The Roadmap includes an indication from the Welsh Government that it has the potential to double the amount of renewable energy consumption by 2025, and to deliver 4GW of power from marine energy.</p> <p>The 2013 update highlights that offshore wind and marine energy have the potential to make significant contributions to meeting the UK's future energy needs</p>	<p>The WRMP should contribute towards increasing the proportion of energy from renewable energy sources.</p> <p>The SEA assessment framework should include consideration of the use of energy from renewable energy sources.</p>
<i>BEIS (2015) Future Electricity Networks</i>	
<p>Overall aims:</p> <ul style="list-style-type: none"> • ensure the timely, cost-effective and reliable connection of electricity generation to demand • support a low-carbon, secure and affordable national system <p>Specific objectives for future electricity networks:</p> <ul style="list-style-type: none"> • maintain electricity network reliability • ensure new generation (renewables, nuclear and fossil fuels) and new demand (including electric vehicles and heat pumps) receive timely and affordable connection to the network • use regulation to make sure networks are cost effective, competitive and using smarter technology 	<p>The WRMP should consider if it can support the delivery of the aims of the strategy.</p> <p>The SEA should include objectives and guide questions relating to energy use.</p>
<i>BEIS (2020) Energy white paper: Powering our net zero future</i>	
<p>The White Paper follows on from the Prime Minister's Ten Point Plan and the National Infrastructure Strategy. The Energy White Paper provides further clarity on the Prime Minister's measures and puts in place a strategy for the wider energy system that:</p>	<p>The WRMP should consider if it can support the delivery of the aims of the white paper.</p>

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<ul style="list-style-type: none"> Transforms energy, building a cleaner, greener future for the country, its people and the planet Supports a green recovery, growing the economy, supporting green jobs across the country in new green industries and leveraging new green export opportunities Creates a fair deal for consumers, protecting the fuel poor, providing opportunities to save money on bills, providing warmer, more comfortable homes and balancing investment against bill impacts 	The SEA should include objectives and guide questions relating to energy use and carbon emissions.
<i>BEIS (2021) Heat and buildings strategy</i>	
<p>This strategy sets out how the UK will decarbonise our homes, and our commercial, industrial and public sector buildings, as part of setting a path to net zero by 2050.</p> <p>The heat and buildings strategy sets out the government’s plan to significantly cut carbon emissions from the UK’s 30 million homes and workplaces in a simple, low-cost and green way whilst ensuring this remains affordable and fair for households across the country. Like the transition to electric vehicles, this will be a gradual transition which will start by incentivizing consumers and driving down costs.</p> <p>There are about 30 million buildings in the UK. Heating these buildings contributes to almost a quarter of all UK emissions. Addressing the carbon emissions produced in heating and powering our homes, workplaces and public buildings can not only save money on energy bills and improve lives, but can support up to 240,000 skilled green jobs by 2035, boosting the economic recovery, levelling up across the country and ensuring we build back better.</p>	<p>The WRMP should consider the impact of water supply and usage on carbon emissions from buildings.</p> <p>The SEA should include objectives and guide questions relating to energy use and carbon emissions.</p>
<i>BEIS (2021) Net Zero Strategy: Build Back Greener</i>	
<p>The Net Zero Strategy sets out policies and proposals for keeping the UK on track for carbon budgets, the Nationally Determined Contribution (NDC), and sets out our vision for a decarbonised economy in 2050. The Strategy sets out a delivery pathway showing indicative emissions reductions across sectors to meet targets up to the sixth carbon budget (2033-2037).</p>	<p>The WRMP should consider if it can support the delivery of the aims of the strategy.</p> <p>The SEA should include objectives and guide questions relating to energy use and carbon emissions.</p>
<i>Canal & River Trust (2015) Living Waterways Transform Places & Enrich Lives: Our 10 Year Strategy</i>	
<p>The strategy sets out goals for the organisation for the next ten years. These are themed under:</p> <ul style="list-style-type: none"> Waterways, including: ‘To encourage and grow the number of people boating, using and enjoying the waterways’ and ‘To look after the heritage and wildlife on our canals and rivers for people to enjoy now and in the future’; Place, including: ‘To provide havens for people to escape to away from the pressures of modern life’ and ‘Enhance wildlife habitats and the natural landscape’; Prosperity, including: ‘Our waterways to drive and be a catalyst for regeneration and developments that make a difference to the local area’ and ‘To contribute to local economies and to provide opportunities and livelihoods for local people’; and People, including: ‘Communities to feel ownership of, and get involved with caring for, their local waterway’ and ‘To offer something for everyone to enjoy’. <p>These are in addition to goals relating to Influence and Resources.</p>	<p>The WRMP should avoid causing detrimental effects on canals and rivers.</p> <p>The SEA assessment framework should include objectives which take into account the goals of the strategy and the protection of rivers and canals.</p>
<i>Canal and River Trust (2015) Water Resources Strategy 2015 – 2020</i>	
<p>The Strategy sets out the Canal and River Trust’s overarching vision for the period 2015 – 2020 for how it intends to manage water resources across the inland waterway network that it manages. The strategy is focused on delivering long-term security of water supply for the Canal & River Trust to achieve its vision of living waterways that transform places and enrich lives.</p>	<p>The WRMP should take into consideration the potential impact on the supply of water to the inland waterway network within the Wessex Water operational area.</p>

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	The SEA should consider the effects of the WRMP on the long-term supply of water to the canal network.
Centre for Environment Fisheries and Aquaculture Science and Natural Resources Wales (2021) <i>Assessment of Salmon Stocks and Fisheries in England and Wales 2020</i>	
Annual reports on the status of salmon stocks and fisheries in England and Wales have been produced since 1997. These reports present a preliminary assessment for the most recent year to assist the International Council for the Exploration of the Sea (ICES) in providing scientific advice to the North Atlantic Salmon Conservation Organisation (NASCO) and to provide early feedback to fishery managers and anglers.	<p>The WRMP should consider the information on salmon stocks and fisheries and the potential effects of WRMP measures on stocks and fisheries.</p> <p>The SEA should consider the effects of the WRMP on salmon stocks and fisheries and should include objectives and guide questions relating to the protection of salmon stocks and fisheries.</p>
Department for Culture, Media and Sport (DCMS) (2001) <i>The Historic Environment – A Force for the Future</i>	
This strategy outlines the Governments policy regarding the historic environment. The strategy has key aims and objectives that demonstrate the contribution the historic environment makes to the country's economic and social well-being.	The WRMP and the SEA should seek to ensure any adverse effects on heritage assets are minimised or avoided.
DCMS and Welsh Government (2007) <i>Heritage Protection for the 21st Century</i>	
<p>The document has three core principles:</p> <ul style="list-style-type: none"> • Developing a unified approach to the historic environment; • Maximising opportunities for inclusion and involvement; and • Supporting sustainable communities by putting the historic environment at the heart of an effective planning system. 	The assessment framework should include objectives which take into account the White Paper's principles.
DCMS (2013) <i>Scheduled Monuments & Nationally Important but Non-Scheduled Monuments</i>	
This policy statement sets out Government policy on the identification, protection, conservation and investigation of nationally important ancient monuments, under the provisions of the Ancient Monuments and Archaeological Areas Act 1979. It includes principles relating to the selection of scheduled monuments and the determination of applications for scheduled monument consent.	<p>The WRMP should seek to avoid adverse impacts on scheduled and non-scheduled monuments.</p> <p>The SEA assessment framework should include specific objectives relating to cultural heritage</p>
DCMS (2016) <i>The Culture White Paper</i>	
<p>This white paper sets out how the government will support the cultural sectors over the coming years and how culture will play an active role in building a fairer and more prosperous nation. It includes four key themes:</p> <ul style="list-style-type: none"> • everyone should enjoy the opportunities culture offers, no matter where they start in life; • the riches of our culture should benefit communities across the country; and • the power of culture can increase our international standing. 	<p>The WRMP should seek to protect cultural heritage assets.</p> <p>The SEA assessment framework should include an objective relating to cultural heritage.</p>

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The white paper includes objectives relating to the development of the historic environment sector, and the protection of world heritage.	
<i>Defra (2004) Rural Strategy</i>	
The strategy sets out rural and countryside policy, and draws upon from lessons learnt following the rural white paper. Objectives include supporting economic and social regeneration across rural England and enhance the value of the countryside and protect the natural environment for this and future generations.	<p>The implementation of certain Plan options may have an effect upon rural communities and the countryside.</p> <p>The SEA should also seek to ensure that the quality of the region's landscapes, natural resources and biodiversity are maintained or enhanced.</p>
<i>Defra (2005) Making space for water: taking forward a new government strategy for flood and coastal erosion risk management in England</i>	
<p>The programme seeks to embed flood and coastal erosion risk management across a range of Government policies, including planning, urban and rural development, agriculture, transport, nature conservation and conservation of the historic environment.</p> <p>The main objectives of the strategy are:</p> <ul style="list-style-type: none"> • To reduce the threat of flooding to people and their property, and • To deliver the greatest environmental, social and economic benefit, consistent with the Government's sustainable development principles. <p>There are no formal targets or indicators.</p>	<p>The WRMP should seek to support the objectives of the strategy, where possible.</p> <p>The SEA should seek to ensure that coastal erosion in the region is not adversely affected by the implementation of the WRMP.</p>
<i>Defra (2006) Shoreline Management Plan Guidance</i>	
<p>A shoreline management plan (SMP) is a coastal defence management tool. It is a large-scale assessment of the risks associated with coastal processes and helps to reduce these risks to people and the developed, historic and natural environment. This guidance document sets out Defra's and the Welsh Government's strategy for managing flooding and coastal erosion. The guidance includes the following objectives:</p> <ul style="list-style-type: none"> • set out the risks from flooding and erosion to people and the developed, historic and natural environment within the SMP area; • identify opportunities to maintain and improve the environment by managing the risks from floods and coastal erosion; • identify the preferred policies for managing risks from floods and erosion over the next century; • identify the consequences of putting the preferred policies into practice; • set out procedures for monitoring how effective these policies are; • inform others so that future land use, planning and development of the shoreline takes account of the risks and the preferred policies; • discourage inappropriate development in areas where the flood and erosion risks are high; and, • meet international and national nature conservation legislation and aim to achieve the biodiversity objectives. 	<p>The WRMP should seek to align with the objectives of the guidance where appropriate.</p> <p>The SEA should take into account the effects of the WRMP on areas with a SMP.</p>
<i>Defra (2007) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland</i>	

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<p>The Air Quality Strategy sets out air quality objectives and policy options to further improve air quality in the UK to benefit public health, quality of life and help to protect our environment. The strategy sets out objectives relating to particles, nitrogen dioxide, ozone, sulphur dioxide, polycyclic aromatic hydrocarbons, benzene, 1,3- butadiene, carbon monoxide, lead, nitrogen oxides and sulphur dioxide.</p>	<p>The WRMP should take account of air quality objectives in the strategy.</p> <p>The SEA should include objectives and guide questions relating to air quality, human health and environmental protection.</p>
<i>Defra (2009) Safeguarding our Soils – A Strategy for England</i>	
<p>The new Soil Strategy for England – Safeguarding our Soils outlines the Government's approach to safeguarding our soils for the long term. It provides a clear vision to guide future policy development across a range of areas and sets out the practical steps that we need to take to prevent further degradation of our soils, enhance, restore and ensure their resilience, and improve our understanding of the threats to soil and best practice in responding to them.</p> <p>The Government's vision is that: By 2030, all England's soils will be managed sustainably and degradation threats tackled successfully. This will improve the quality of England's soils and safeguard their ability to provide essential services for future generations.</p>	<p>The SEA should seek to ensure that the quality of the region soils and their management is protected or enhanced.</p>
<i>Defra, Department of the Environment (NI), Scottish Government and Welsh Assembly Government (2010) Air Pollution: Action in a Changing Climate</i>	
<p>This document highlights the health benefits that can be achieved through closer integration of air quality and climate change policies. Air pollution often originates from the same activities that contribute to climate change (notably transport and electricity generation), so linkages between these policy areas could help ensure that they are managed most effectively. Air quality/climate change co-benefits can be realised through actions such as promoting low-carbon vehicles and renewable sources of energy that do not involve combustion.</p> <p>The document aims to set ambitious but realistic air quality targets, and to ensure that climate and air quality targets are better aligned in future.</p>	<p>The WRMP should seek to ensure that air quality, climate change and human health are not adversely affected by the options/measures set out in the plan.</p> <p>The SEA should include guide questions relating to the effects of options on human health and the environment.</p>
<i>Defra (2010) Making Space for Nature: A Review of England's Wildlife Sites and Ecological Network</i>	
<p>This independent review of England's wildlife sites and the connections between them sets objectives and recommendations to help achieve a healthy natural environment that will allow our plants and animals to thrive.</p>	<p>The SEA should seek to maintain and enhance the quality of habitats and biodiversity, where possible.</p>
<i>Defra (2011) UK National Ecosystem Assessment and Defra (2014) UK National Ecosystems Assessment Follow on, Synthesis of Key Findings</i>	
<p>Ecosystems services from natural capital contribute to the economic performance of the nation. Information and tools to enable decision makers to understand the wider value of ecosystems and their associated services.</p>	<p>For the purposes of the readership integrating an ecosystems services approach into the SEA is not being undertaken. However, it is realised that through the 'Objective-led' approach, many of the services relevant to the WRMP can be considered through the objectives and guide questions for example:</p> <ul style="list-style-type: none"> • Provisioning Services: Freshwater • Provisioning Services: Biodiversity

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	<ul style="list-style-type: none"> • Regulating Services: Water Regulation • Cultural services: Recreation and ecotourism • Cultural services: Cultural heritage values • Cultural services: Aesthetic <p>The SEA should ensure the WRMP affects the related provisioning services in the least damaging way through informing the WRMP formulation and selection of options. In the event of further guidance being issued on incorporating ESA into SEA, the anticipated approach is sufficiently flexible that it should be able to accommodate this (subject to timing).</p>
<i>Defra (2011) Water for Life - Water White Paper</i>	
<p>Water for Life describes a vision for future water management in which the water sector is resilient, in which water companies are more efficient and customer focused, and in which water is valued as the precious and finite resource it is.</p> <p>The White Paper includes several proposals for deregulating and simplifying legislation, to reduce burdens on business and stimulate growth. Ofwat’s proposals for reducing its regulatory burdens complement these.</p>	<p>The WRMP should ensure that future drainage and wastewater management is resilient, efficient and customer focused</p> <p>The SEA should consider resilience to climate change and should consider the human environment to ensure the WRMP remains customer focused.</p>
<i>Defra (2011) Biodiversity 2020: A Strategy for England’s Wildlife and Ecosystem Services</i>	
<p>This new biodiversity strategy for England provides a comprehensive picture of how we are implementing our international and EU commitments. It sets out the strategic direction for biodiversity policy for the next decade on land (including rivers and lakes) and at sea.</p> <p>The strategy sets 20 targets across 5 strategic goals:</p> <ul style="list-style-type: none"> • Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society; • Reduce the direct pressures on biodiversity and promote sustainable use; • Improve status of biodiversity by safeguarding ecosystems, species and genetic diversity; • Enhance the benefits to all from biodiversity and ecosystem services; and <p>Enhance implementation through participatory planning, knowledge management and capacity building.</p>	<p>The WRMP should contribute towards meeting the targets and objectives within the strategy where possible.</p> <p>The SEA should include objectives to improve status of biodiversity and enhance benefits of biodiversity and its ecosystem services, and reduce pressures on ecosystems.</p>
<i>Defra (2011) Mainstreaming Sustainable Development</i>	

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<p>This document sets out the Government’s vision for mainstreaming sustainable development in relation to the operation of its buildings and estates, including the goods and services that it buys and the policies it makes. It builds on the principles that underpinned the UK’s 2005 sustainable development strategy, and highlights that long term economic growth relies on protecting and enhancing the environmental resources that underpin it, and paying due regard to social needs.</p> <p>It sets out measures to achieve the mainstreaming of sustainable development, which include ministerial leadership and oversight; leading by example; embedding sustainable development in government policy; and transparency and independent scrutiny.</p>	<p>The WRMP should seek to be aligned with the principles of sustainable development.</p> <p>The SEA assessment framework should include objectives relating to the principles of sustainable development, including communities, economy and environment.</p>
<i>Defra (2011) Natural Environment White Paper</i>	
<p>The Natural Environment White Paper (2011) recognises that nationally, the fragmentation of natural environments is driving continuing threats to biodiversity. It sets out the Government’s policy intent to:</p> <ul style="list-style-type: none"> • improve the quality of the natural environment across England; • move to a net gain in the value of nature; • arrest the decline in habitats and species and the degradation of landscapes; • protect priority habitats; • safeguard vulnerable non-renewable resources for future generations; • support natural systems to function more effectively in town, in the country and at sea; and • create an ecological network which is resilient to changing pressures. <p>By 2020, the Government wants to achieve an overall improvement in the status of the UK’s wildlife including no net loss of priority habitat and an increase of at least 200,000 hectares in the overall extent of priority habitats. Under the White Paper, the Government has also put in place a clear institutional framework to support nature restoration which includes Local Nature Partnerships creating new Nature Improvement Areas (NIAs).</p>	<p>The WRMP should reflect the Government’s policy intent set out in the White Paper.</p> <p>The SEA assessment framework should include objectives, indicators and targets that reflect the Government’s policy intent set out in the White Paper.</p>
<i>Defra (2012) National Policy Statement for Waste Water</i>	
<p>This National Policy Statement (NPS) sets out Government policy for the provision of major waste water infrastructure. It will be used by the Infrastructure Planning Commission (IPC) to guide its decision making on development consent applications for waste water developments that fall within the definition of Nationally Significant Infrastructure Project (NSIP) as defined in the Planning Act 2008.</p>	<p>The WRMP should be compliant with the policies set out within the National Policy Statement. The WRMP should also consider any unforeseen NSIP proposals that come forward prior to adoption which may affect drainage and wastewater management in the Wessex Water area.</p> <p>The SEA should consider the cumulative effects of the WRMP and any unforeseen NSIP proposals that come forward which may affect drainage and wastewater management in the Wessex Water area.</p>
<i>Defra (2013) The National Adaptation Programme – Making the Country Resilient to a Changing Climate</i>	

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<p>This Programme contains a mix of policies and actions to help adapt successfully to future weather conditions, by dealing with the risks and making the most of the opportunities.</p> <p>It sets out a number of objectives, including:</p> <ul style="list-style-type: none"> To provide a clear local planning framework to enable all participants in the planning system to deliver sustainable new development, including infrastructure that minimises vulnerability and provides resilience to the impacts of climate change. To increase the resilience of homes and buildings by helping people and communities to understand what a changing climate could mean for them and to take action to become resilient to climate risks. <p>To ensure infrastructure is located, planned, designed and maintained to be resilient to climate change, including increasingly extreme weather events.</p>	<p>The WRMP should ensure that proposals are resilient to the effects of climate change. Where possible, options should be considered that enhance resilience.</p> <p>The SEA should consider the effects of options on climate change resilience.</p>
Defra (2013) <i>What nature can do for you</i>	
<p>This guide is designed to help policy makers across Government to understand:</p> <ul style="list-style-type: none"> The value of what nature does for you now, The costs and risks we are leaving ourselves open to if we fail to take the value of its services into account in our decisions, How you can work with natural systems to help you deliver efficiently in the future. <p>The guide is focussed on helping policy makers to put this into practice and includes:</p> <ul style="list-style-type: none"> A clear explanation of the principles of an ecosystems approach Details on how an ecosystems approach can help policy makers to take account of the value of the natural environment at every stage of the policy making process 1 hour of essential reading to help readers quickly get up to speed on this issue A 'self-assessment' to help policy makers to see how they are doing already and what could be gained by doing more to understand how the natural environment interacts with their policy issue Sign-posting to a range of detailed resources, case-studies and further reading on specific topics such as valuation and systematic thinking. 	<p>The WRMP should consider how to work with natural systems to provide efficient solutions with multiple benefits where possible, aiming to implement an ecosystems approach.</p>
Defra (2015) <i>The government's response to the Natural Capital Committee's Third State of Natural Capital report</i>	
<p>This provides a number of recommendations such as:</p> <p>Agreement for the development of a 25 year plan for a healthy natural economy. This includes helping organisations understand the economic, social and cultural value the impact their actions have on it and how to use the knowledge for better decisions; identify most important and threatened environmental assets; protection of designated areas; address outstanding monitoring and data issues to enable better decisions about strategic investments in natural capital.</p> <p>Assigning institutional responsibility for monitoring the state of natural capital.</p> <p>Organisations that manage land and water assets should create a register of natural capital for which they are responsible.</p>	<p>Outputs from the SEA process will help to inform any future potential development by Wessex Water of Natural Capital Accounting (NCA) approaches to assessing environmental asset performance. Government (led by HM Treasury and Defra) is increasingly using NCA to support future environmental policy and decision making, and there may be future expectations on water companies to follow suit.</p>

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<i>Defra (2015) The Great Britain Invasive Non-native Species Strategy</i>	
<p>The strategy sets out key aims and actions for addressing the threats posed by invasive non-native species, including the prevention of invasive species arriving in Britain, early detection and monitoring, eradication and control. It also aims to:</p> <ul style="list-style-type: none"> • get people to work better together, including the government, stakeholders, land managers and the general public; and • improve co-ordination and co-operation on issues at a European and international level. <p>The strategy covers the period 2015 to 2020.</p>	<p>The WRMP should seek to avoid the spread of invasive species. The SEA should consider the effects of the WRMP on biodiversity.</p>
<i>Defra (2016) Guiding principles for water resources planning for water companies operating wholly or mainly in England</i>	
<p>The document sets out the key policy priorities the government expects water resources management plans (WRMP) to address. The four key principles are:</p> <ul style="list-style-type: none"> • Take a long term, strategic approach to protecting and enhancing resilient water supplies; • Consider every option to meet future public water supply needs; • Protect and enhance our environment, acting collaboratively; and • Promote efficient water use and reduce leakage. 	<p>The WRMP should consider the guiding principles.</p>
<i>Defra (2017) Air Quality Plan for Nitrogen Dioxide (NO2) in UK</i>	
<p>This plan sets out how the Government will improve air quality in the UK by reducing nitrogen dioxide emissions in towns and cities. The air quality plans set out targeted local, regional and national measures across 37 zone plans (areas which have identified air quality issues with nitrogen dioxide), a UK overview document and a national list of measures. Measures relate to freight, rail, sustainable travel, low emission vehicles and cleaner transport fuels, among others.</p>	<p>The WRMP should have regard to the air quality plans and specific local measures. The SEA should consider the effects of the WRMP on air quality.</p>
<i>Defra (2018) The National Adaptation Programme and the Third Strategy for Climate Adaptation Reporting</i>	
<p>The National Adaptation Programme (NAP) sets the actions that government and others will take to adapt to the challenges of climate change in the UK. It sets out key actions for the next 5 years. Flooding and pressure on water services are considered to be cross cutting risks. The report also details how the third cycle of adaptation reporting will be managed, forming part of the five-yearly cycle of requirements laid down in the Climate Change Act 2008.</p>	<p>The WRMP should ensure that proposals are resilient to the effects of climate change. Where possible, options should be considered that enhance resilience. The SEA should consider the potential to include adaptive measures for climate change.</p>
<i>Defra (2020) Drought Plan Direction 2020</i>	
<p>Sets out the timescales for water companies to develop and consult on Drought Plans.</p>	<p>The WRMP SEA will take account of the statutory requirements of this Direction, where relevant.</p>
<i>Defra (2020) National food strategy for England</i>	
<p>This independent report looks at the entire food chain, from field to fork. This includes production, marketing, processing, sale and purchase of food (for consumption in the home and out of it). It also looks at the consumer practices, resources and institutions involved in these processes. The report makes recommendations for government, which has promised to respond formally with a White Paper within 6 months.</p>	<p>The implementation of the WRMP may have some indirect links with the food industry, through ensuring the availability of water for food based activities. The SEA should also seek to promote the most effective use of the region's natural resources</p>

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<i>Defra (2020) Natural Capital Committee's Seventh Annual Report</i>	
<p>The government published its 25 Year Environment Plan (25 YEP) in 2018, setting out how it will deliver on its commitment to leave the environment in a better state for the next generation: as first made in the 2011 White Paper, The Natural Choice. Progress on the Agriculture and Fisheries Bills has been limited, but the Natural Capital Committee (NCC) welcomes the legislation for a target of net-zero greenhouse gas emissions by 2050. Nature based interventions will be critical in meeting this target.</p>	<p>Outputs from the SEA process will help to inform any future potential development by WW of Natural Capital Accounting (NCA) approaches to assessing environmental asset performance. Government (led by HM Treasury and Defra) is increasingly using NCA to support future environmental policy and decision making, and there may be future expectations on water companies to follow suit.</p>
<i>Defra (2020) The Path to Sustainable Farming: An Agricultural Transition Plan 2021 to 2024</i>	
<p>The path to sustainable farming is aiming to achieve:</p> <ul style="list-style-type: none"> • a renewed agricultural sector, producing healthy food for consumption at home and abroad, where farms can be profitable and economically sustainable without subsidy • farming and the countryside contributing significantly to environmental goals including addressing climate change 	<p>The implementation of the WRMP may have some indirect links with the food industry, through ensuring the availability of water for food based activities. The SEA should also seek to promote the most effective use of the region's natural resources, including soil, biodiversity and energy resources.</p>
<i>Defra (2020) Water abstraction plan: Environment</i>	
<p>This document sets out how the government will reform water abstraction management over the coming years and how this will protect the environment and improve access to water.</p> <p>The plan states that the current approach to managing abstraction has three main issues:</p> <ul style="list-style-type: none"> • some older licences allow abstraction that can damage the environment; • the current approach is not flexible enough to cope with the pressures of increasing demand for water and climate change in the long term, or to allow abstractors access to additional water when it is available; and, • the abstraction service is outdated and paper-based. <p>The plan explains how approaches identified to address these issues will be implemented. The Government's approach to addressing these issues has three main elements:</p> <ul style="list-style-type: none"> • making full use of existing regulatory powers and approaches to address unsustainable abstraction and move around 90% of surface water bodies and 77% of groundwater bodies to the required standards by 2021 • developing a stronger catchment focus – bringing together the Environment Agency, abstractors and catchment groups to develop local solutions to existing pressures and to prepare for the future. These local solutions will: <ul style="list-style-type: none"> ◦ protect the environment by changing licences to better reflect water availability in catchments and reduce the impact of abstraction 	<p>The WRMP should consider if it can help to address the issues set out in the plan.</p> <p>The SEA should consider the effects of the WRMP on the environment, climate change and the sustainability of options.</p>

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<ul style="list-style-type: none"> ○ improve access to water by introducing more flexible conditions that support water storage, water trading and efficient use • supporting these reforms by modernising the abstraction service, making sure all significant abstraction is regulated and bringing regulations in line with other environmental permitting regimes <p>The supplementary <i>Environment</i> provides further information on the work to address unsustainable abstraction set out in the abstraction plan.</p> <p>The supplementary <i>Catchment Focus</i> document provides further information on proposals set out in the abstraction plan to develop a stronger catchment focus. This is about bringing together the Environment Agency, abstractors and catchment partnerships to identify and implement local solutions to existing pressures and to prepare for the future.</p> <p>The supplementary <i>Abstraction Licencing Service</i> document provides further information on the planned reforms to the abstraction licensing service set out in the abstraction plan.</p>	
Defra (2021) <i>Waste Management Plan for England</i>	
<p>The Waste Management Plan for England is an analysis of the current waste management situation in England. The plan does not introduce new policies or change how waste is managed in England. Its aim is to bring current waste management policies together under one national plan.</p>	<p>The WRMP may involve the generation of waste (e.g. either through construction requirements or operation of options).</p> <p>The SEA should seek to enhance recycling and minimise the amount of waste going to landfill.</p>
Defra (2023) <i>Environmental Improvement Plan 2023</i>	
<p>The 25 Year Environmental Plan, published in 2018, set out a vision for a quarter-of-a century of action to help the natural world regain and retain good health.</p> <p>This document represents the first review of the 25YEP. It reinforces the intent of the 25YEP. Where the 25YEP set out the framework and vision, this document sets out the plan to deliver.</p> <p>To achieve its vision, the 25YEP sets out 10 goals which have been used as the basis for the Environmental Improvement Plan: setting out the progress made against all 10, the specific targets and commitments made in relation to each goal, and our plan to continue to deliver these targets and the overarching goals.</p> <p>The environmental goals are:</p> <ul style="list-style-type: none"> ● Goal 1: Thriving plants and wildlife ● Goal 2: Clean air ● Goal 3: Clean and plentiful water ● Goal 4: Managing exposure to chemicals and pesticides ● Goal 5: Maximise our resources, minimise our waste ● Goal 6: Using resources from nature sustainably ● Goal 7: Mitigating and adapting to climate change ● Goal 8: Reduced risk of harm from environmental hazards ● Goal 9: Enhancing biosecurity ● Goal 10: Enhanced beauty, heritage, and engagement with the natural environment 	<p>The WRMP should seek to protect and enhance the natural environment, taking into consideration the principals and guidance set out through the Environment Act.</p>
Defra and the Environment Agency (2018) <i>Resources and Waste Strategy for England</i>	

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<p>This white paper outlines a package of reforms so that by 2030 there will be a flexible, smart and responsive electricity system, powered by a range of low carbon sources of electricity. This includes engaging with consumers on energy use. Decarbonisation is important in meeting the 2050 targets.</p>	<p>The implementation of the WRMP may have an influence upon WW's total energy use. The SEA should seek to promote energy efficiency, as well as seeking to reduce the effects of climate change through greenhouse gas emissions. The SEA should also promote the use of renewable energy, where relevant.</p>
Defra, Environment Agency, Natural England, Forestry Commission England (2016) <i>Creating a great place for living</i>	
<p>In 2016 Defra produced a report that set out objects to great a great place for living, The objectives are related to the following topics:</p> <ul style="list-style-type: none"> • Environment – a cleaner, healthier environment, benefiting people and the economy; • Food and farming – a world-leading food and farming industry; • Rural – a thriving rural economy, contributing to national prosperity and wellbeing; • Protection – a nation better protected against floods, animal and plant diseases and other hazards, with strong response and recovery capabilities; • Excellent Delivery – Excellent delivery, on time and to budget with outstanding value for money; <p>An outstanding organisation – an organisation striving to be the best, focused on outcomes and constantly challenging itself.</p>	<p>The SEA must take into account impacts of plan options (construction and operation) on the environment, as well as the population and human health and land use (which will impact on the food and farming and rural objectives).</p>
Defra and the Law Commission (2018) <i>Draft National Policy Statement for Water Resources Infrastructure</i>	
<p>The Government has laid before Parliament a draft National Policy Statement for water resources infrastructure. The NPS summarises the water infrastructure funding process. This would streamline the planning process for certain types of large-scale water supply project, under the regime for nationally significant infrastructure established in the Planning Act 2008.</p> <p>The draft NPS proposes that, if a nationally significant infrastructure project is identified in a company's final water resources management plan (WRMP), then the need for that project will have been established as part of a fast-tracked development consent application.</p>	<p>The draft NPS will influence implementation of large scale options identified by the WRMP. The SEA should consider the impacts of these large scale options on various environmental criteria.</p>
Defra, Scottish Government, Welsh Government (2015) <i>The Great Britain Invasive Non-native Species Strategy</i>	
<p>The strategy sets out key aims and actions for addressing the threats posed by invasive non-native species, including the prevention of invasive species arriving in Britain, early detection and monitoring, eradication and control. It also aims to:</p> <ul style="list-style-type: none"> • get people to work better together, including the government, stakeholders, land managers and the general public; and • improve co-ordination and co-operation on issues at a European and international level. <p>The strategy covers the period 2015 to 2020.</p>	<p>The WRMP should seek to avoid the spread of invasive species. The SEA should consider the effects of the WRMP on biodiversity.</p>
Defra and Welsh Government (2014) <i>River Basin Planning Guidance</i>	
<p>Aims to give guidance on practical implementation of the Water Framework Directive (WFD). The river basin planning process involves setting environmental objectives for all groundwater and surface waters (including estuaries and coastal waters) within the river basin district, and devising programmes of measures to meet those objectives.</p>	<p>The WRMP should take into account the contents of this statutory guidance</p>

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Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government) (2014) <i>National Planning Policy for Waste</i>	
<p>Sets out detailed waste planning policies for local authorities. States that planning authorities need to:</p> <ul style="list-style-type: none"> • Need to use a proportionate evidence base in preparing Local Plans • Identify sufficient opportunities to meet the identified needs of their area for the management of waste streams • Identify suitable sites and areas for waste facilities. 	<p>The WRMP may need to consider the potential impact of options on waste generation and on waste management facilities in the WRMP area.</p> <p>The SEA should consider the effects of the WRMP on waste generation and management capacity.</p>
Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2015) <i>Renewable and Low Carbon Energy</i>	
<p>Increasing the amount of energy from renewable and low carbon technologies will help to make sure the UK has a secure energy supply, reduce greenhouse gas emissions to slow down climate change and stimulate investment in new jobs and businesses. Planning has an important role in the delivery of new renewable and low carbon energy infrastructure in locations where the local environmental impact is acceptable.</p>	<p>The WRMP should, where possible, contribute towards increasing the proportion of energy from renewable energy sources.</p> <p>The SEA assessment framework should include consideration of the use of energy from renewable energy sources.</p>
Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2015) <i>Strategic environmental assessment and sustainability appraisal</i>	
<p>This guidance provides clarity on the need for sustainability appraisal and strategic environmental assessment in relation to plan development.</p> <p>Strategic environmental assessment considers only the environmental effects of a plan, whereas sustainability appraisal considers the plan's wider economic and social effects in addition to its potential environmental impacts. Sustainability appraisal should meet all of the requirements of the Environmental Assessment of Plans and Programmes Regulations 2004, so a separate strategic environmental assessment should not be required.</p>	<p>The SEA should consider the environmental effects of the WRMP.</p>
Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local (2021) <i>National Design Guide</i>	
<p>The national design guide sets out the characteristics of well-designed places and demonstrates what good design means in practice.</p> <p>It forms part of the government's collection of planning practice guidance and should be read alongside the separate planning practice guidance on design process and tools.</p>	<p>The WRMP should consider the characteristics of well-designed places and how this can put into practice.</p>
Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local (2021) <i>National Planning Policy Framework 2021</i>	
<p>The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these are expected to be applied. The National Planning Policy Framework constitutes guidance for local planning authorities and decision-takers both in drawing up plans and as a material consideration in determining applications.</p> <p>At the heart of the NPPF is a presumption in favour of sustainable development, which should be seen as a golden thread running through both plan-making and decision-taking. The NPPF requires that the planning system should be genuinely plan-led and that plans should:</p>	<p>The WRMP and SEA should take account of the key components of sustainable development and consider the three dimensions to sustainable development: economic, social and environmental.</p>

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<p>a) be prepared with the objective of contributing to the achievement of sustainable development</p> <p>b) be prepared positively, in a way that is aspirational but deliverable;</p> <p>c) be shaped by early, proportionate and effective engagement between planmakers and communities, local organisations, businesses, infrastructure providers and operators and statutory consultees;</p> <p>d) contain policies that are clearly written and unambiguous, so it is evident how a decision maker should react to development proposals;</p> <p>e) be accessible through the use of digital tools to assist public involvement and policy presentation; and</p> <p>f) serve a clear purpose, avoiding unnecessary duplication of policies that apply to a particular area (including policies in this Framework, where relevant).</p>	
Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local (various) <i>Planning Practice Guidance</i>	
<p>Planning Practice Guidance (PPG) is designed to support the NPPF. It reflects the objectives of the NPPF which are not repeated here. PPG provides additional planning guidance on a number of topics. Those that are particularly relevant to the WRMP24 include:</p> <ul style="list-style-type: none"> • Air quality; • appropriate assessment; • climate change; • effective use of land; • flood risk and coastal change; • healthy and safe communities; • historic environment; • natural environment; • open space, sports and recreation facilities, public rights of way and local green space; • strategic environmental assessment and sustainability appraisal; and, • water supply, wastewater and water quality. 	The WRMP should take into consideration guidance set out in the PPG insofar as it relates to the area covered by the WRMP.
Department for Transport (2022) <i>UK Electric Vehicle Infrastructure Strategy</i>	
<p>This strategy sets out the Department for Transport’s vision and action plan for the rollout of electric vehicle charging infrastructure in the UK, ahead of the phase out dates. They intend:</p> <ul style="list-style-type: none"> • to end the sale of new petrol and diesel petrol and diesel vehicles by 2030 • for all new cars and vans to be fully zero emission at the tailpipe by 2035 	<p>The WRMP should consider use of zero emission vehicles when delivering options where applicable.</p> <p>The SEA should also promote the use of renewable energy, where relevant.</p>
Environment Agency (2004) <i>Catchment Flood Management Plans: Guidelines – Volume 1 Policy</i>	
<p>These guidelines support the EA’s strategy for flood risk management and work towards achieving the government’s strategy for flood and coastal erosion flood risk management. The aims of Catchment Flood Management Planning are:</p> <ul style="list-style-type: none"> • To promote sustainable flood risk management measures • To reduce the sources of flooding and harm to people, and the natural, built and historic environment caused by floods • To support the delivery of the Government’s and others’ policies and targets, and the Environment Agency’s environmental vision. 	<p>The WRMP should seek to support the aims of the plan.</p> <p>The SEA should consider how the WRMP may affect flood risk across the region.</p>
Environment Agency (2007) <i>Soil: A Precious Resource</i>	

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<p>The soil strategy identifies the Environment Agency's priorities, sets out their role and says what action is to be taken to protect, manage and restore soil. Damaged soil structure can lead to flooding, water pollution and can affect the landscape and archaeological features.</p> <p>The strategy also outlines the part managing soils can play in mitigating climate change.</p>	<p>The WRMP should ensure the sustainable management of soil resources.</p> <p>SEA objectives should reflect and consider relevant priorities from the Soil: A Precious Resource publication.</p>
<i>Environment Agency (2008) Better Sea Trout and Salmon Fisheries: Our Strategy for 2008-2021</i>	
<p>The strategy has the goal of more sea trout and more salmon in more rivers bringing more benefit. This goal is to be brought about through achieving three broad targets:</p> <ol style="list-style-type: none"> 1. Self-sustaining sea trout and salmon in abundance in more rivers 2. Economic and social benefits optimised for sea trout and salmon fisheries 3. Widespread and positive partnerships, producing benefits <p>There are twelve more detailed targets lying below these broad goals which relate to salmon and fisheries.</p>	<p>The WRMP should take the strategy into account where it may have an effect on salmon and trout, e.g. where an option may involve inserting or removing a barrier to fish.</p> <p>The SEA should include a guide question in relation to the effects of options on recreation (i.e. recreational angling) and also appropriate targets in monitoring proposals.</p>
<i>Environment Agency (2009) Water for People and the Environment - Water Resources Strategy for England and Wales</i>	
<p>Environment Agency's water resources strategy sets out how Environment Agency believe water resources should be managed England and Wales to 2050 and beyond to ensure that there will be enough water for people and the environment. It sets out how water resources should be managed within Defra frameworks in its water strategy for England 'Future Water', and in Wales, the Welsh Government's 'Environment Strategy for Wales'.</p> <p>Objectives in the strategy are set out under four broad themes: adapting to and mitigating climate change; a better water environment; sustainable planning and management of water resources; and, water and the water environment are valued.</p> <p>This strategy sets out the following objectives:</p> <ul style="list-style-type: none"> • Ecology is more resilient to climate change because abstraction pressures have been reduced and a diverse network of habitats has been allowed to develop; • The resilience of supplies and critical infrastructure is increased to reduce the impacts of climate change; • Flexible and incremental solutions in water resources management allow adaptation to climate change as it happens; • Everyone is able to make more informed decisions and choices about managing water resources, protecting the environment and choosing options to avoid security of supply problems; • Greenhouse gas emissions from using water resources are minimised and properly considered in future decisions; • Measures will be in place to make sure that water bodies achieve Water Framework Directive objectives; • Abstraction is sustainable, the environment is protected and improved and supplies remain secure; • Environmental problems caused by historic unsustainable abstractions are resolved; • Catchment management is integrated so that impacts on water resources and the water environment are managed together; • The twin track approach of resource development with demand management is adopted in all sectors of water use; • In England, the average amount of water used per person in the home is reduced to 130 litres each day by 2030; 	<p>The objectives for the WRMP should reflect these objectives, where relevant.</p> <p>The SEA should seek to promote the protection and enhancement of water resources and to encourage sustainable management of the resource.</p>

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<ul style="list-style-type: none"> • The Environment Agency targets and adapts its approach to reflect the location and timing of pressures on water resources; • In England, water companies implement near-universal metering of households, starting in areas of serious water stress; • Leakage from mains and supply pipes is reduced; • New and existing homes and buildings are more water efficient; • Water resources are allocated efficiently and are shared within regions where there are areas of surplus; • Water pricing for the abstraction and use of water acts as an incentive for the sustainable use of water resources; • Abstractors and users make informed choices to use water more efficiently; • Innovative tariffs are adopted by water companies to maximise savings and minimise issues of affordability; • The needs of wildlife, fisheries, navigation and recreation, as well as the environment and abstractors, are fully taken into account when allocating water resources; • Innovative technology is developed to improve water efficiency by all water users. <p>The strategy includes a number of actions for Environment Agency and others to develop targets for water reduction and efficiency.</p>	
<i>Environment Agency (2010) Water Resources Action Plan for England and Wales</i>	
<p>The strategy has four main aims:</p> <ul style="list-style-type: none"> • Adaptation to and mitigation of climate change; • A better water environment; • Sustainable planning and management of water resources; • People valuing water and the water environment. 	The SEA should seek to ensure that strategy objectives are also reflected in the SEA objectives particularly regarding the sustainable management of water resources and protecting the environment.
<i>Environment Agency (2013) Areas of Water Stress: Final Classification</i>	
The report is the Environment Agency's formal advice on which areas in England are of serious water stress.	<p>The WRMP should seek to contribute to addressing the requirements of water stressed areas.</p> <p>The SEA assessment framework should consider the effects of the WRMP on water resources and the associated socio-economic and environmental receptors.</p>
<i>Environment Agency (2013) Climate Change Approaches in Water Resources Planning: New Methods</i>	
This research paper examines how climate change has been built into water resource management plans and recommends best and appropriate practice for the future, with reference to the use of the detailed tools and probabilistic climate data in UKCP09.	<p>The WRMP should take into account climate projections and suggestions for best practice.</p> <p>The SEA should consider the effects of the WRMP on climate change</p>
<i>Environment Agency (2013) Managing Water Abstraction</i>	
Managing Water Abstraction sets out how the EA manage water resources in England and Wales. It is the overarching document that links together the abstraction licensing strategies. The availability of water resources for abstraction is assessed through a Catchment Abstraction Management Strategy (CAMS) approach.	The SEA should include a guide question relating to the sustainable use of water resources.

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<i>Environment Agency (2017) Drought response: our framework for England</i>	
<p>This policy paper outlines how the Environment Agency works with government, water companies and others to manage water resources during a drought in England. It does this by setting out:</p> <ul style="list-style-type: none"> • how drought affects different parts of England in different ways • which organisations are involved in managing drought and how they work together • how the Environment Agency and others make decisions and decide on actions to take • how the Environment Agency monitors and measures the impacts of drought • how the Environment Agency reports on drought and communicates with others 	<p>The WRMP should consider how drought affects different areas and how it can act to mitigate the impacts of drought.</p> <p>The SEA should outline the impacts of potential WRMP options on drought.</p>
<i>Environment Agency (2017) Groundwater Protection Technical Guidance</i>	
<p>This guidance is for planners, applicants for environmental permits and abstraction licences, and landowners concerned with the quality and quantity of groundwater. The guidance helps to understand:</p> <ul style="list-style-type: none"> • inputs of substances and pollutants to groundwater • discernibility of hazardous substances • when geological formations can be determined permanently unsuitable for other purposes 	<p>The WRMP should follow the guidance where groundwaters/abstraction are concerned.</p> <p>The SEA should consider the impact of the WRMP on groundwater quality and quantity.</p>
<i>Environment Agency (2018) The Environment Agency's Approach to Groundwater Protection</i>	
<p>This document updates Groundwater protection: Principles and practice (GP3). It contains position statements which provide information about the Environment Agency's approach to managing and protecting groundwater. They detail how the Environment Agency delivers government policy for groundwater and adopts a risk-based approach where legislation allows. Many of the approaches set out in the position statements are not statutory but may be included in, or referenced by, statutory guidance and legislation.</p> <p>This document will be of interest to developers, planners, environmental permit applicants and holders, abstractors, operators and anyone whose current or proposed activities have an impact on, or are affected by groundwater. Each section is focused on different activities or sectors. Environment Agency staff will use these position statements as a framework to make decisions. This clear approach aims to remove uncertainty and potentially inconsistent decision-making. The Environmental Permitting (England and Wales) Regulations 2016 (EPR) require permitting of activities that may lead to the input into groundwater of hazardous substances or non-hazardous pollutants. Groundwater resources are primarily managed by abstraction licensing. The primary aim of all of the position statements is the prevention of pollution of groundwater and protection of it as a resource. Groundwater protection is long term, so these principles and position statements aim to protect and enhance this valuable resource for future generations</p>	<p>The WRMP should aim to protect groundwater resources and use the document to aid decision making where groundwaters are concerned.</p> <p>The SEA should consider the impact of the WRMP on groundwater quality and quantity.</p>
<i>Environment Agency (2020) EA2025 creating a better place</i>	
<p>The plan sets out the Environment Agency's ambition for how they plan to create better places for people, wildlife and the environment, up to 2025.</p> <p>This document includes the Environment Agency's purpose, priorities, culture and values as well as how they will help to deliver the 25 year environment plan. It includes the metrics that the EA will be measured against so they know when they are succeeding in our ambitions. The plan sets out 3 long term goals:</p> <ul style="list-style-type: none"> • A nation resilient to climate change • Healthy air, land and water • Green growth and a sustainable future 	<p>The SEA and the WRMP should consider the EA's priorities.</p>
<i>Environment Agency (2020) Meeting our future water needs: a national framework for water resources</i>	

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<p>The national framework explores England's long-term water needs for:</p> <ul style="list-style-type: none"> • public water supplies • agriculture • the power and industry sectors • environmental protection <p>It sets out the principles, expectations and challenges for 5 regional groups (made up of the 17 English water companies and other water users). These have been developed and agreed by the regional groups, other major water abstractors, government, regulators and stakeholders. The national framework considers the needs of the whole region and of other water users. It looks at how these needs fit with the national water picture and how we can provide the resilience and environmental protection needed.</p>	<p>The WRMP should seek to support the achievement of the aims of the framework.</p> <p>The SEA should include an objective/guide question relating to water resources.</p>
<i>Environment Agency (2020) National Flood and Coastal Erosion Risk Management Strategy for England</i>	
<p>This strategy describes what needs to be done by all organisations involved in flood and coastal erosion risk management. These include local authorities, internal drainage boards, water and sewerage companies, highways authorities, and the Environment Agency. They all act to reduce the risk of flooding and coastal erosion and manage its consequences.</p> <p>The strategy sets out a statutory framework that will help communities, the public sector and other organisations to work together to manage flood and coastal erosion risk. It supports local decision-making and engagement in FCERM, making sure that risks are managed in a co-ordinated way across catchments and along each stretch of coast. This includes the development of local flood risk management strategies by lead local flood authorities, as well as our strategic overview of all sources of flooding and coastal erosion.</p> <p>This strategy's long-term vision is for: a nation ready for, and resilient to, flooding and coastal change – today, tomorrow and to the year 2100.</p> <p>It has 3 long-term ambitions, underpinned by evidence about future risk and investment needs. They are:</p> <ul style="list-style-type: none"> • climate resilient places: working with partners to bolster resilience to flooding and coastal change across the nation, both now and in the face of climate change • today's growth and infrastructure resilient in tomorrow's climate: making the right investment and planning decisions to secure sustainable growth and environmental improvements, as well as infrastructure resilient to flooding and coastal change • a nation ready to respond and adapt to flooding and coastal change: ensuring local people understand their risk to flooding and coastal change, and know their responsibilities and how to take action. 	<p>The WRMP should be prepared in line with the strategy.</p> <p>The SEA framework should consider flooding and coastal erosion.</p>
<i>Environment Agency (2020) Water Company Drought Plan guideline</i>	
<p>This guidance, written in conjunction with Defra, outlines the legislative requirements for a drought plan. This document also provides a timeline for the drought planning process.</p>	<p>The WRMP and the SEA should consider the guideline, where relevant.</p>
<i>Environment Agency (2022) Water resources planning guideline supplementary guidance – Environment and society in decision-making</i>	
<p>This document supports the water resources planning guideline. It provides guidance on how to consider the environment and society in decision-making for water resources management plans and regional plans. It is applicable to England only. There is separate guidance for Wales available from Natural Resources Wales.</p> <p>This supplementary guidance sets out how the environment and society should be considered through:</p> <ul style="list-style-type: none"> • Strategic Environmental Assessment (SEA) • biodiversity net gain assessment • natural capital assessments 	<p>The WRMP and SEA should take into account the supplementary guidance.</p>
<i>Environment Agency (undated) Hydroecology: Integration for modern regulation</i>	
<p>This paper describes clear way forward in terms of hydroecology and a strategic direction to its development and application.</p>	<p>The WRMP should ensure relevant ecological considerations</p>

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	are integral to drainage and wastewater management decisions across the range of temporal and spatial scales.
<i>Environment Agency (undated) Restoring Sustainable Abstraction Programme</i>	
EA note that there is evidence to suggest that unsustainable abstraction of groundwater and surface water could be contributing to environmental damage of rivers and wetlands in England and Wales, including sites of national and international conservation importance. In May 1997, at the Government's Water Summit, a commitment was made to reverse the damage caused by past decisions. EA investigates where over-abstraction has occurred and work with local people to restore sustainable supplies.	
<i>Environment Agency (undated) WFD River Basin Characterisation Project: Technical Assessment Method - River abstraction and flow regulation</i>	
This paper describes the method used to assess the likelihood of river water bodies achieving the relevant WFD objectives as a result of artificial influences on low river flows.	Implementation of the WRMP may impact river water quality. The SEA should seek to promote the protection and enhancement of biodiversity and river water quality across the region.
<i>Environment Agency, Natural Resources Wales and The Water Services Regulation Authority (2023) Water Resources Planning Guideline</i>	
The water resources planning guideline provides an update to the framework for water companies to follow in developing and presenting their water resources plans. It sets out good practice behind the composition of a plan, the approaches to developing a plan and the information that a plan should contain. The guideline states that where feasible water and sewerage companies should ensure that their long-term planning for wastewater and water supply are aligned. Along with highlighting any linkages and, or interdependencies (or both). The guideline states that water/sewerage companies should consider alignment in their growth forecasts, climate change scenarios and timetable for delivering solutions.	The WRMP should align with the WRMP as suggested in the guideline. The SEA should seek to ensure that water supplies and resources are maintained or enhanced in line with the Water Resources Planning Guidelines.
<i>English Heritage (2008) Climate Change and the Historic Environment</i>	
Sets out the current thinking on the implications of climate change for the historic environment. It is intended both for the heritage sector and also for those involved in the wider scientific and technical aspects of climate change; in the development of strategies and plans relating to the impact of climate change; or in projects relating to risk assessment, adaptation and mitigation.	The SEA should seek to assess the implications of the WRMP in combination with climate change and the potential impacts on heritage and the historic environment.
<i>English Heritage (2010) Heritage at Risk</i>	
Heritage at Risk is a national project that aims to identify the endangered sites (historic buildings and places with increased risks of neglect and decay) and then help secure them for the future. Regional Heritage at Risk Registers were most recently published in 2017.	The SEA should seek to protect and enhance heritage and landscape and the assessment framework should include an objective relating to cultural heritage.
<i>Historic England (2015) The Setting of Heritage Assets, Historic Environment Good Practice Advice in Planning 3</i>	
This document sets out guidance, against the background of the NPPF, on managing change within the settings of heritage assets, including archaeological remains and historic buildings, sites, areas, and landscapes. It gives general advice on understanding setting, and how it may contribute to the significance of heritage assets and allow that significance to be appreciated, as well as advice on how views contribute to setting.	The WRMP and SEA should take account of the need to protect and enhance the setting of heritage assets.

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<i>Historic England (2016) Historic England Advice Note 8: Sustainability Appraisal and Strategic Environmental Assessment</i>	
<p>This Historic England Advice Note supersedes previous advice issued on this subject in 2013. It seeks to provide advice on historic environment considerations as part of the Sustainability Appraisal/Strategic Environmental Assessment process. This document is aimed at all relevant local planning authorities, neighbourhood groups, developers, consultants, landowners and other interested parties. It identifies the recommended list of plans, programmes and policies for review, approach to baseline review, potential sustainability issues.</p>	<p>The SEA should consider the potential effects of the WRMP on the historic environment, particularly designated assets and their settings, and to important wetland areas with potential for paleo-environmental deposits. Historic characterisation can supplement information about designations. Sustainability issues, objectives and indicators identified in this document should be taken into account in the SEA.</p>
<i>The Historic Environment Group (2018) Historic Environment and Climate Change Sector Adaption Plan</i>	
<p>The sector adaptation plan (SAP) is a high-level, strategic document intended to identify climate change risks, opportunities and adaptation needs for the historic environment. Its aim is to stimulate action through strategies, programmes and partnerships.</p>	<p>The WRMP should seek to reduce its contribution to climate change and aim to assist in the protection of the historic environment within the operational area.</p> <p>The SEA assessment framework should consider the effects of the WRMP on climate change and associated effects on the historic environment.</p>
<i>HM Government (1975) Salmon and Freshwater Fisheries Act 1975</i>	
<p>The act encompasses fishing regulation, as well as illegal obstruction of migratory pathways and prohibited modes of destroying fish. The act allows the salmon to maintain an environmentally stable population and support the fishing industry.</p>	<p>The SEA and WRMP should consider the protection of salmon and freshwater fish.</p>
<i>HM Government (1975) Reservoirs Act</i>	
<p>The Reservoirs Act 1975 provides a legal framework to ensure the safety against failure of large raised reservoirs.</p> <p>The act applies to reservoirs that hold at least 25,000 cubic metres of water above natural ground level.</p> <p>Safety legislation for reservoirs in the United Kingdom was introduced in 1930 after several reservoir disasters had resulted in loss of life. This law was superseded by the Reservoirs Act 1975.</p> <p>Under the Reservoirs Act 1975 reservoir owners (undertakers) have ultimate responsibility for the safety of their reservoirs.</p> <p>Reservoir owners must appoint a panel engineer (a specialist civil engineer who is qualified and experienced in reservoir safety) to supervise the design and construction of the reservoir, to continuously supervise the reservoir when built (supervising engineer) and to carry out periodic inspections (inspecting engineer).</p>	<p>The WRMP should consider any effects of options on reservoirs capacity, functioning and downstream flows.</p>
<i>HM Government (1979) Ancient Monuments and Archaeological Areas Act 1979</i>	
<p>The Act defines sites that warrant protection as ancient monuments. They can be a Scheduled Monuments or "any other monument which in the opinion of the Secretary of State is of public interest by reason of the historic, architectural, traditional, artistic or archaeological interest attaching to it".</p>	<p>The WRMP should consider if there are ways in which they can contribute to the protection of Scheduled Monuments.</p>

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	The SEA assessment framework should include consideration of Scheduled Monuments.
HM Government (1981) <i>Wildlife and Countryside Act 1981</i>	
<p>The Act makes it an offence (with exceptions) to:</p> <ul style="list-style-type: none"> Intentionally kill, injure or take any wild bird or their eggs or nests; Intentionally kill, injure, or take, possess, or trade in any wild animal listed in Schedule 5; Prohibits interference with places used for shelter or protection, or intentionally disturbing animals; and Pick, uproot, trade in, or possess (for the purposes of trade) and wild plant listed in Schedule 8. <p>The Act also provides for the notification of Sites of Special Scientific Interest (SSSI) and require surveying authorities to maintain up to date definitive maps and statements, for the purpose of clarifying public rights of way.</p>	<p>The WRMP must ensure full compliance with the Act.</p> <p>The SEA should ensure a positive contribution to the wildlife within the operational area.</p>
HM Government (1990) <i>Environmental Protection Act</i>	
<p>The Act defines the legal framework for England, Wales and Scotland regarding environmental protection, including the duty of care for waste, contaminated land, and statutory nuisance. Under the Act, Local Authorities or private individuals may take action to secure abatement of any such nuisance, such as noise, and only one person need be affected for action to be possible. It also specifies offences related to the storage, movement, treatment or disposal of controlled waste, and sets out the regime for identifying and remediating contaminated land.</p>	<p>The WRMP must ensure compliance with the Act.</p> <p>The SEA assessment framework should include waste and nuisance.</p>
HM Government (1990) <i>Planning (Listed Buildings and Conservation Areas) Act 1990</i>	
<p>The Planning (Listed Buildings and Conservation Areas) Act 1990 provides specific protection for buildings and areas of special architectural or historic interest. The Act introduced the listing of buildings for buildings which possess special architectural or historic interest and the designation of conservation areas for areas of special architectural or historic interest the character or appearance of which it is desirable to preserve or enhance.</p>	<p>The WRMP should seek to avoid adverse impacts on cultural heritage assets.</p> <p>The SEA assessment framework should include specific objectives relating to cultural heritage.</p>
HM Government (1990) <i>Town and Country Planning Act 1990</i>	
<p>The Town and Country Planning Act controls and consents development, which is defined as building, engineering, mining or other operations in. on, over or under land, or the making of any material change in the use of any building or land.</p>	<p>The WRMP must ensure full compliance with the Act.</p> <p>The SEA should include objectives and guide questions relating to biodiversity, land use, and landscape.</p>
HM Government (1991 and 1994) <i>Land Drainage Act</i>	
<p>The Land Drainage Act 1991 requires that a watercourse be maintained by its owner in such a condition that the free flow of water is not impeded. The riparian owner must accept the natural flow from upstream but need not carry out work to cater for increased flows resulting from some types of works carried out upstream, for example a new housing development.</p> <p>If a riparian owner fails to carry out his responsibilities under the Land Drainage Act, or if anyone else causes a watercourse to become blocked or obstructed, the County and District Councils have powers of enforcement by serving a notice under the Act. If this is ignored, the Council concerned may carry out the necessary itself and then recharge the person responsible for the full cost incurred. The District Council normally implements these powers but the County Council will deal with problems that affect the highway. The person responsible may also be prosecuted for nuisance under the Public Health Act 1936.</p>	<p>The WRMP should be prepared in accordance with the act.</p>

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The 1994 Act amends the Land Drainage Act of 1991 in relation to the functions of internal drainage boards and local authorities.	
HM Government (1991) <i>Water Industry Act 1991 (as amended by the Flood and Water Management Act 2010)</i>	
The Water Industry Act sets out the regulatory, competition and consumer representation frameworks for the water sector in England and Wales including the duty for water companies to prepare WRMPs.	The WRMP should be prepared in accordance with the Water Industry Act 1991, where relevant.
HM Government (1991) <i>Water Resources Act 1991</i>	
The Water Resources Act applies to England and Wales and established the National Rivers Authority (now the Environment Agency) to regulate water pollution, water resources, flood defence, fisheries and navigation. The Act covers water abstraction and impounding and discharges to surface and ground waters and coastal waters.	The WRMP must ensure full compliance with the Act
HM Government (1994) <i>The Conservation (Natural Habitats, &c.) Regulations 1994</i>	
These regulations transposed European Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) into national law. The Regulations provide for the designation and protection of 'European sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites.	<p>The WRMP should seek to protect European sites and species.</p> <p>The SEA assessment framework should include objectives and guide questions relating to the protection of European sites and species, as well as biodiversity more generally.</p>
HM Government (1994) <i>UK Biodiversity Action Plan</i>	
<p>The aim of the action plan is to conserve and enhance biological diversity in the UK and to contribute to the conservation of national and global biodiversity and include the follow aims to maintain and, where practicable, to enhance:</p> <ul style="list-style-type: none"> • The overall populations and natural ranges of native species and the quality and range of wildlife habitats and ecosystems; • Internationally and nationally important and threatened species, habitats and ecosystems; • Species, habitats and natural and managed ecosystems that are characteristic of Kent; • The biodiversity of natural and semi-natural habitats, where this has diminished over 3 recent decades, and • Public awareness of, and involvement in, conserving biodiversity. 	Ensure that the WRMP and SEA encourage conservation and offer protection to areas and species of high conservation importance as identified in this action plan.
HM Government (1994) <i>Urban Waste Water Treatment (England and Wales) Regulations 1994</i>	
The Regulations transposed the requirements of the Urban Waste Water Treatment Directive 91/271/EEC (as amended). The Regulations impose requirements for: collection systems for treated urban waste water; discharges from treatment plants, and sets out methods for monitoring; and makes provisions with regard to discharges of industrial wastewater and the dumping of sludge from ships.	The WRMP should reflect the requirements set out in the regulations.
HM Government (1995) <i>Environment Act 1995</i>	
The Act seeks to protect and preserve the environment and guard against pollution to air, land or water. The Act adopts an integrated approach to environmental protection and outlines where authorisation is required from relevant authorities to carry out certain procedures as well as outlining the responsibilities of the relevant authorities. It established the Environment Agency, the Scottish Environment Protection Agency and the National Park authorities. The Act	<p>The WRMP must ensure compliance with the Act.</p> <p>The SEA assessment framework should include waste and air quality.</p>

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also includes provisions relating to remediation of contaminated land, waste and the designation of Air Quality Management Areas.	
<i>HM Government (2000) The Countryside and Rights of Way (CROW) Act 2000</i>	
This act extends the public's ability to enjoy the countryside and safeguards landowners and occupiers. The Act creates a new statutory right of access to open county and registered common land, modernise the right of way system, give greater protection to Sites of Special Scientific Interest (SSSIs), provide greater protection arrangements for Areas of Outstanding Natural Beauty (AONBs) and strengthen wildlife enforcement legislation.	The SEA must make sure that the Act is supported and that public rights of way and access to the countryside are maintained and where possible enhanced.
<i>HM Government (2002) The National Heritage Act 2002</i>	
This Act builds on the preceding National Heritage Acts of 1980, 1983 and 1997. All four Acts define the way in which National heritage assets are managed and protected. The 2002 Act extended the powers of the Historic Buildings and Monuments Commission to include underwater archaeology within the territorial waters of the United Kingdom.	The WRMP should be compliant with the Act. The SEA should include objectives relating to the protection of heritage features.
<i>HM Government (2003) The Water Act 2003</i>	
The four broad aims of the Act are: <ul style="list-style-type: none"> the sustainable use of water resources; strengthening the voice of consumers; a measured increase in competition; and the promotion of water conservation. It amends the Water Industry Act 1991 so that water companies: <ul style="list-style-type: none"> are given a duty to prepare and publicise drought plans; are placed under a duty to agree and publicise water resource management plans; and <ul style="list-style-type: none"> are placed under an enforceable duty to further water conservation. As part of the Act the Water Services Regulation Authority (Ofwat) became the economic regulator of the water and sewage industry in England and Wales.	The WRMP should support the achievement of the aims of the act, where possible. The SEA should include objectives relating to water quality, water resources and sustainable water use.
<i>HM Government (2004) The Environmental Assessment of Plans and Programmes Regulations 2004</i>	
These regulations only apply to plans and programmes within England and set out the procedures required when undertaking an environmental assessment.	The SEA should take the regulations into account when assessing the WRMP.
<i>HM Government (2005) Securing the Future; Delivering UK Sustainable Development Strategy</i>	
The strategy for sustainable development aims to enable all people to satisfy their basic needs and enjoy a better quality of life without compromising the quality of life of future generations. The strategy places a focus on protecting natural resources and enhancing the environment.	The SEA must seek to ensure that objectives relating to sustainable development, sustainable resource use and protecting the natural environment, are considered when assessing the potential impacts of the WRMP
<i>HM Government (2006) Climate Change and Sustainable Energy Act 2006</i>	
The Act was enacted after the publication of the UK Climate Change Programme (2006). It places an obligation on the government to report to Parliament on greenhouse gas emissions in the UK and action taken by Government to reduce these emissions.	The WRMP should take into account carbon emissions associated with the measures. The SEA could include an objective/guide question in the assessment framework to reduce greenhouse gas/carbon dioxide emissions. Consider whether the monitoring arrangements can be utilised to monitor the effects of the WRMP.
<i>HM Government (2006) Natural Environment and Rural Communities Act 2006</i>	

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<p>The Act:</p> <ul style="list-style-type: none"> • makes provision about bodies concerned with the natural environment and rural communities; • makes provision in connection with wildlife, sites of special scientific interest, National Parks and the Broads; • amends the law relating to rights of way; • makes provision as to the Inland Waterways Amenity Advisory Council; and <p>provides for flexible administrative arrangements in connection with functions relating to the environment and rural affairs and certain other functions; and for connected purposes.</p>	<p>The WRMP and SEA should have regard to protected wildlife sites and species, landscapes and rights of way.</p>
HM Government (2007) <i>Water Resources Management Plan Regulations 2007</i>	
<p>These Regulations set out the process for the preparation of WRMPs.</p>	<p>The WRMP should consider these regulations, where relevant.</p>
HM Government (2008) <i>The Climate Change Act 2008 and The Climate Change Act 2008 (2050 Target Amendment) Order 2019</i>	
<p>This Act aims:</p> <ul style="list-style-type: none"> • to improve carbon management and help the transition towards a low carbon economy in the UK; and • to demonstrate strong UK leadership internationally, signalling that the UK is committed to taking its share of responsibility for reducing emissions in the context of ratifying the global Paris Agreement. <p>The UK Climate Change Act 2008 (as amended) sets legally binding targets for the UK to reduce greenhouse gas emissions by at least 100% (net zero) by 2050.</p> <p>Further the Act provides for a carbon budgeting system which caps emissions over five year periods to set out our trajectory to 2050. Budgets have been set covering the periods 2008-12, 2013-17, 2018-22, 2023-27, 2028-32 and 2033-37, equivalent to 25%, 31%, 37%, 51%, 57% and 78% reductions in carbon emissions compared to 1990 levels respectively.</p>	<p>The WRMP should seek contribute towards increasing the proportion of energy from renewable energy sources. The SEA assessment framework should include consideration of greenhouse gas emissions and use of energy from renewable energy sources.</p>
HM Government (2008) <i>The Energy Act 2008</i>	
<p>The Energy Act 2008 contains the legislative provisions required to implement UK energy policy following the publication of the Energy Review 2006 and the Energy White Paper 2007.</p> <p>The key elements of the Act:</p> <ul style="list-style-type: none"> • Strengthens the regulatory framework for offshore gas supply infrastructure to enable private sector investment; • Creates a regulatory framework to enable private sector investment in Carbon Capture and Storage projects; • Strengthens the Renewables Obligation to drive greater and more rapid deployment of renewables in the UK; • Strengthens statutory decommissioning provisions for offshore renewables and oil and gas installations to minimise the risk of liabilities falling to the Government; • Improves the offshore oil and gas licensing regime in response to changes in the commercial environment and enable the Department for Business Enterprise and Regulatory Reform to carry out its regulatory functions more effectively; • Ensures the operators of new nuclear power stations accumulate funds to meet the full costs of decommissioning and their full share of waste management costs; and 	<p>The WRMP should have regard to the provisions in the Act. The SEA should include objectives relating to energy and resource use.</p>

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<ul style="list-style-type: none"> Introduces amending powers such that Ofgem is able to run the offshore electricity transmission licensing regime more effectively. <p>The subsequent Energy Acts (2010, 2011, 2013, 2016) contain provisions relating to carbon capture and storage, decarbonisation, fuel poverty, reductions in carbon emissions, security of energy supply, nuclear regulation and the Oil and Gas Authority, amongst others.</p>	
HM Government (2008) <i>Planning Act 2008</i>	
This Act introduced a new system for nationally significant infrastructure planning, alongside further reforms to the Town and Country Planning system.	<p>The WRMP should consider any unforeseen NSIP proposals that come forward prior to adoption which may affect water resources in the region.</p> <p>The SEA should consider the cumulative effects of the WRMP and any unforeseen NSIP proposals that come forward which may affect water resources in the region.</p>
HM Government (2009) <i>The Eels (England and Wales) Regulations 2009</i> (as amended 2011)	
These regulations were introduced in 2009 and amended in 2011. They afford powers to the Environment Agency to implement measures for the recovery of European eel stocks and have important implications for operators of abstractions and discharges.	The SEA and WRMP should have regard to eel populations.
HM Government (2009) <i>The Groundwater (England and Wales) Regulations 2009</i>	
<p>The Groundwater Regulations are designed to implement a daughter directive to the European Water Framework Directive and prevent or limit the inputs of polluting substances into groundwater.</p> <p>Substances controlled under these regulations fall into two categories:</p> <ol style="list-style-type: none"> Hazardous substances, defined as those which are toxic, persistent or liable to bioaccumulate must be prevented from entering groundwater. Substances in this list may be disposed of to the ground, under a permit, but must not reach groundwater. They include pesticides, sheep dip, solvents, hydrocarbons, mercury, cadmium and cyanide. Non-hazardous pollutants are less dangerous, and can be discharged to groundwater under a permit, but must not cause pollution. Examples include sewage, trade effluent and most wastes. Non-hazardous pollutants include any substance capable of causing pollution and the list is much wider than the previous List 2 substances. 	<p>The WRMP will need to comply with the requirements of the Regulations where appropriate.</p> <p>The SEA assessment should include an objective relating to the effects of options on groundwater quality.</p>
HM Government (2009) <i>Marine and Coastal Access Act 2009</i>	
The Marine and Coastal Access Act sets out a number of measures including the establishment of Marine Conservation Zones (MCZs) and Marine Spatial Plans. It also includes amendments to the Salmon and Freshwater Fisheries Act, 1975.	<p>The WRMP should take into account its effects on coastal areas, where appropriate.</p> <p>The SEA assessment should take into account the effects of the actions on the coast where relevant.</p>
HM Government (2009) <i>Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009 SI 3104</i>	
<p>Amends Water Resources Act 1991 by extending the use of Water Protection Zones and Works Notices, in particular to deal with harm to aquatic ecosystems caused by the physical characteristics of a water course or lake, such as quantity, structure and substrate of river/lake bed.</p> <p>Aligns the Water Resources Act with the hydromorphological requirements of the WFD</p>	<p>The SEA should include objectives that cover hydromorphological aspects and seek to ensure that hydromorphological features</p>

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	within the plan are maintained or enhanced.
HM Government (2009) <i>The UK Renewable Energy Strategy</i>	
<p>The Strategy sets out to:</p> <ul style="list-style-type: none"> Put in place the mechanisms to provide financial support for renewable electricity and heat worth around £30 billion between up to 2020; Drive delivery and clear away barriers; Increase investment in emerging technologies and pursue new sources of supply; and <p>Create new opportunities for individuals, communities and business to harness renewable energy.</p>	<p>The WRMP should contribute towards increasing the proportion of energy from renewable energy sources, where possible.</p> <p>The SEA assessment framework should include consideration of the use of energy from renewable energy sources.</p>
HM Government (2010) <i>Flood and Water Management Act 2010</i>	
<p>The Flood and Water Management Act 2010 aims to provide better, more sustainable management of flood risk for people, homes and businesses, help safeguard community groups from unaffordable rises in surface water drainage charges and protect water supplies to the consumer. The Act will also implement recommendations made by Sir Michael Pitt in his review of the 2007 floods. This will include giving water companies new powers to better control non-essential domestic uses of water during periods of water shortage.</p> <p>The Act places a number of statutory duties on water companies including:</p> <ul style="list-style-type: none"> a duty to act consistently with the National Strategy; and <p>a duty to have regard to the content of the Local Flood Risk Management Strategies. Does not contain any targets.</p>	<p>The WRMP should be in conformity with the Act.</p> <p>The SEA should include objectives relating to flood risk and water use.</p>
HM Government (2011) <i>Localism Act 2011</i>	
<p>The Localism Act provides greater devolved powers to councils and neighbourhoods and gives local communities more control over housing and planning decisions.</p>	<p>The WRMP and the SEA Environmental Report will be subject to public consultation.</p>
HM Government (2011) <i>UK Marine Policy Statement</i>	
<p>The Marine Policy Statement (MPS) sets out the framework for preparing Marine Plans and taking decisions affecting the marine environment, supporting the delivery of the following high-level marine objectives:</p> <ul style="list-style-type: none"> Achieving a sustainable marine economy; Ensuring a strong, healthy and just society; Living within environmental limits; Promoting good governance; Using sound science responsibly. <p>Does not contain any targets.</p>	<p>The WRMP should take into account its effects on coastal areas.</p> <p>The SEA assessment should take into account the effects of the actions on the coast/marine environment where relevant.</p>
HM Government (2011) <i>Water for Life: White Paper</i>	
<p>Water for Life describes a vision for future water management in which the water sector is resilient, in which water companies are more efficient and customer focused, and in which water is valued as the precious and finite resource it is.</p> <p>Water for Life includes several proposals for deregulating and simplifying legislation, to reduce burdens on business and stimulate growth. Ofwat's proposals for reducing its regulatory burdens complement these.</p>	<p>The WRMP should help to contribute to the resilient and efficient management of water.</p> <p>In order to ensure future water management is resilient SEA should consider resilience to climate change and should consider the human environment.</p>
HM Government (2013) <i>The Energy Act 2013</i>	

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<p>The Act established a legislative framework for delivering secure, affordable and low carbon energy. At its core is the need to ensure that, as older power plants are taken offline, the United Kingdom remains able to generate enough energy to meet its needs even if demand increases. The Act sets out provisions for:</p> <ul style="list-style-type: none"> • Decarbonisation • Electricity Market Reform (EMR) • Nuclear Regulation • Government Pipeline and storage system • Strategy and policy statement • Customer protection 	<p>The WRMP should comply with the act, where relevant.</p> <p>The SEA should include guide questions relating to energy use and carbon emissions.</p>
HM Government (2014) <i>Water Act 2014</i>	
<p>The purpose of the Act was to make provision about the water industry; about compensation for modification of licences to abstract water; about main river maps; about records of waterworks; for the regulation of the water environment; about the provision of flood insurance for household premises; about internal drainage boards; about Regional Flood and Coastal Committees; and for connected purposes.</p>	<p>The WRMP help to ensure that future water management is resilient, efficient and customer focused</p>
HM Government (2015) <i>The Environmental Damage (Prevention and Remediation) (England) Regulations 2015</i>	
<p>These regulations amend the 2009 regulations and provide additional protection to habitats and species identified on Annexes 1 and 2 of the EC Habitats Directive (92/43/EEC), SSSIs and, in some cases, classified waterbodies from environmental damage where an operator has intended to cause damage or been negligent to the potential for damage. Applies to the most serious categories of environmental damage, including:</p> <ul style="list-style-type: none"> • Contamination of land that results in a significant risk of adverse effects on human health • Adverse effects on surface water or groundwater consistent with a deterioration in the water's status • Adverse effects on the integrity of a Site of Special Scientific Interest (SSSI) or on the conservation status of species and habitats protected by EU legislation outside SSSIs. 	<p>The SEA should seek to ensure that the guidance provided by the regulations is considered when assessing the WRMP.</p>
HM Government (2015) <i>Infrastructure Act 2015</i>	
<p>The Infrastructure Act (inter alia) gives environmental authorities new powers to require landowners to take action on invasive non-native species or permit others to enter the land and carry out those operations.</p>	<p>The SEA assessment framework should include guide questions relating to invasive species.</p>
HM Government (2015) <i>The Nitrate Pollution Prevention Regulations 2015</i>	
<p>These regulations consolidate and revoke previous regulations on Nitrate Pollution Prevention (namely the 2008 Nitrate Pollution Prevention Regulations and subsequent amendments).</p> <p>The continue to provide for the implementation of EU Directive 91/676/EEC on the protection of waters against pollution by nitrates from agricultural sources, and Decision 2009/431/EC granting a derogation under that directive, in England.</p> <p>The regulations: provide for the designation of land as nitrate vulnerable zones; impose annual limits on the quantity of nitrogen from organic manure that may be applied or spread in a holding in a nitrate vulnerable zone; establish requirements relating to the amount of nitrogen to be spread on a crop, and requires an occupier to plan in advance how much nitrogen fertiliser will be spread; require an occupier to provide a risk map of the holding; impose conditions on the spreading of nitrogen fertiliser; establish closed periods during which the spreading of nitrogen fertiliser is prohibited; and, makes provision for requirements for storage of nitrogen fertiliser and the keeping of records.</p>	<p>The WRMP should have regard to the requirements of the regulations.</p> <p>The WRMP and the SEA should consider potential effects of WRMP plan measures on Nitrate Vulnerable Zones (NVZs).</p>

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<i>HM Government (2015) Ozone-Depleting Substances Regulations 2015</i>	
The 2015 ODS Regulations implementation of EU Ozone Depleting Substances Regulations (1005/2009). The principle objective is to phase out and control remaining uses of ozone depleting substances (ODS). ODSs commonly include chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs) and halons, which were typically used as refrigerants, air-conditioning systems, and fire-fighting equipment. The Regulations place controls and phase-out dates on the manufacture and supply of ODSs. The Regulations also require ODSs to be removed from refrigeration equipment before such appliances are scrapped. The Regulations specify minimum qualifications for those working on the recovery, recycling, reclamation or destruction of ODS.	The WRMP should have regard to the requirements of the regulations. The SEA assessment framework should include emissions to air.
<i>HM Government (2016) Environmental Permitting (England and Wales) Regulations 2016 (as amended 2018)</i>	
Provides a system for environmental permits and exemptions for industrial activities, mobile plant, waste operations, mining waste operations, water discharge activities, groundwater activities and radioactive substances activities. It also sets out the powers, functions and duties of the regulators.	The WRMP should accord with these Regulations.
<i>HM Government (2017) Conservation of Habitats and Species Regulations 2017 and the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019</i>	
<p>These regulations consolidate all the various amendments made to the Conservation (Natural Habitats) Regulations 1994 in respect of England and Wales. The 1994 Regulations transposed Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive) into national law.</p> <p>The Regulations provide for the designation and protection of 'European sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites. Under the Regulations, competent authorities i.e. any Minister, government department, public body, or person holding public office, have a general duty, in the exercise of any of their functions, to have regard to the EC Habitats Directive.</p> <p>New provisions implement aspects of the Marine & Coastal Access Act 2009. These provisions provide for:</p> <ul style="list-style-type: none"> the transfer of certain licensing functions from Natural England to the Marine Management Organisation (MMO); Marine Enforcement Officers to use powers under the Marine Act to enforce certain offences under the Habitats Regulations. <p>The 2019 (EU Exit) amendment to the Regulations ensures that the habitat and species protection and standards derived from EU law will continue to apply after Brexit.</p>	The WRMP must ensure full compliance with the Regulations. The SEA should take into account the effects of the actions on biodiversity.
<i>HM Government (2017) The Water Environment (WFD) (England and Wales) Regulations 2017</i>	
These regulations transpose the Water Framework Directive into law in England and Wales (see Water Framework Directive 2000/60/EC above).	The WRMP should be aligned with the requirements of the Water Framework Directive. The SEA should include objectives relating to water quality, water resources, sustainable water use, and biodiversity.
<i>HM Government (2017, updated 2019) UK Clean Growth Strategy: Leading the way to a low carbon future</i>	
This document affirms the UK's need to pursue de-carbonisation and provides information on how the UK is performing against its targets to become carbon neutral. The document highlights that continued emission reduction needs to continue in the fields of:	The SEA should have an objective/guide questions relating to sustainable development that references the
<ul style="list-style-type: none"> Power Sector; Buildings; 	

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<ul style="list-style-type: none"> • Industry; • Natural Resources; • Transport; and, • Devolved Administrations. 	need to reduce carbon emissions across all sectors.
<i>HM Government (2018) A Green Future: Our 25 Year Plan to Improve the Environment</i>	
<p>This plan sets out government action to help the natural world regain and retain good health. It aims to deliver cleaner air and water in cities and rural landscapes, protect threatened species and provide richer wildlife habitats using a natural capital approach to better-inform policy. By adopting the plan, the government aims to achieve clean air; clean and plentiful water; thriving plants and wildlife; a reduced risk of harm from environmental hazards such as flooding and drought; using resources from nature more sustainably and efficiently; and, enhanced beauty, heritage and engagement with the natural environment. In addition, the plan will set out to manage pressures on the environment through; mitigating and adapting to climate change, minimising waste, managing exposure to chemicals and enhancing biosecurity.</p> <p>The six key areas for action are:</p> <ul style="list-style-type: none"> • Using and managing land sustainably, which includes embedding an ‘environmental net gain’ principle for development (including housing and infrastructure) • Recovering nature and enhancing the beauty of landscapes • Connecting people with the environment to improve health and wellbeing • Increasing resource efficiency, and reducing pollution and waste • Securing clean, productive and biologically diverse seas and oceans • Protecting and improving the global environment 	<p>The WRMP may influence the environmental benefits and pressures identified in the Environment Plan, such as:</p> <ul style="list-style-type: none"> • Clean air • Clean and plentiful water • Thriving plants and wildlife • Reducing risks of harm from environmental hazards • Using resources from nature more sustainably and efficiently • Enhancing beauty, heritage and engagement with the natural environment • mitigating and adapting to climate change • minimising waste • managing exposure to chemicals • enhancing biosecurity <p>The SEA should ensure that the impacts of any options on the 25-year goals set out in the Environment Plan are fully considered, whilst taking into account environmental net gain and natural capital approach, which the government have identified as principle themes.</p>
<i>HM Government (2018) The Water Supply (Water Quality) Regulations 2018</i>	
<p>These regulations address the quality of water supplied by water undertakers, who supply areas mainly or wholly in England. The new Regulations implement Directive 98/83/EC on the quality of water intended for human consumption.</p> <p>Under these Regulations, water undertakers are required to identify the areas that are to be water supply zones on an annual basis. A water supply zone cannot exceed 100,000 in terms of population before the beginning of each year of the supply.</p>	<p>The WRMP should consider the Regulations.</p> <p>The SEA should take into account potential effects of the measures on drinking water quality.</p>

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<p>The standards of wholesomeness are set out, in respect of water for human consumption, be that through drinking, washing, food preparation or cooking and food production. In order to qualify as wholesome, the water cannot contain any:</p> <ul style="list-style-type: none"> • micro-organism, other than those listed in the full text of Schedule 1 to the Regulations, or parasite; or • substances, other than those listed in the full text of Schedule 1 to the Regulations. 	
<i>HM Government (2020) The Agriculture Act 2020</i>	
<p>The Bill provides the legislative framework for replacement agricultural support schemes to replace the European schemes after UK's exit from the EU and the EU's Common Agricultural Policy (CAP). The Bill provides powers to implement new approaches to farm payments and land management. In England, farmers will be paid to produce 'public goods' such as environmental or animal welfare improvements. The Bill also includes wider measures, including on improving fairness in the agricultural supply chain and on the operation of agricultural markets.</p>	<p>The WRMP should consider the implications of the act.</p>
<i>HM Government (2020) Energy White Paper: Powering our Net Zero Future</i>	
<p>The White Paper follows on from the Prime Minister's Ten Point Plan and the National Infrastructure Strategy. The Energy White Paper provides further clarity on the Prime Minister's measures and puts in place a strategy for the wider energy system that:</p> <ul style="list-style-type: none"> • Transforms energy, building a cleaner, greener future for the country, its people and the planet • Supports a green recovery, growing the economy, supporting green jobs across the country in new green industries and leveraging new green export opportunities • Creates a fair deal for consumers, protecting the fuel poor, providing opportunities to save money on bills, providing warmer, more comfortable homes and balancing investment against bill impacts 	<p>The WRMP should consider if it can support the delivery of the aims of the white paper.</p> <p>The SEA should include objectives and guide questions relating to energy use and carbon emissions.</p>
<i>HM Government (2021) The Environment Act</i>	
<p>The Act seeks to set legislation to improve air and water quality, tackle waste, increase recycling, halt the decline of species, and improve the natural environment. Amongst its provisions, The Act places a duty enshrined in law to ensure water companies secure a progressive reduction in the adverse impacts of discharges from storm overflows. New duties will also require the government to publish a plan to reduce sewage discharges from storm overflows by September 2022 and report to Parliament on the progress towards implementing the plan. The Environment Act also includes a legally binding target on species abundance for 2030, to help reverse declines of species like the hedgehog, red squirrel and water vole.</p>	<p>The WRMP should seek to protect and enhance the natural environment, taking into consideration the principals and guidance set out through the Environment Act.</p>
<i>HM Government (2021) Net Zero Strategy: Build Back Greener</i>	
<p>The Net Zero Strategy sets out policies and proposals for keeping the UK on track for carbon budgets, the Nationally Determined Contribution (NDC), and sets out our vision for a decarbonised economy in 2050. The Strategy sets out a delivery pathway showing indicative emissions reductions across sectors to meet targets up to the sixth carbon budget (2033-2037).</p>	<p>The WRMP should consider if it can support the delivery of the aims of the strategy.</p> <p>The SEA should include objectives and guide questions relating to energy use and carbon emissions.</p>
<i>HM Government (2022) UK Climate Change Risk Assessment 2022</i>	
<p>This report outlines the UK government and devolved administrations' position on the key climate change risks and opportunities that the UK faces today.</p> <p>As required by the Climate Change Act 2008, the UK government has undertaken the third five-year assessment of the risks of climate change on the UK. This is based on the Independent Assessment of UK Climate Risk, the statutory advice provided by the Climate Change Committee (CCC), commissioned by the UK government and devolved administrations.</p>	<p>The WRMP and the SEA should take into consideration the climate risks identified by the assessment.</p>

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The risk assessment considers sixty-one UK-wide climate risks and opportunities cutting across multiple sectors of the economy and prioritises eight risk areas for action in the next two years.	
<i>HM Treasury (2016) National Infrastructure Delivery Plan</i>	
This document is the Government's updated National Infrastructure Delivery Plan. It sets out the plan to 2021 and beyond and takes a targeted approach to infrastructure investment and delivery across different sectors. It contains major commitments to improve the UK's transport, energy, communications, waste, water, housing and flood and coastal erosion, as well as steps to attract new private sector investment. It includes reference to the production of Water Resources Management Plans and the Ofwat price review.	The WRMP should consider the content and commitments of the plan.
<i>JNCC and Defra (2012) UK Post-2010 Biodiversity Framework</i>	
The framework sets out UK priorities for work on the Convention on Biological Diversity, and follows on from the 1994 UK Biodiversity Action Plan. It sets out a vision that, 'by 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people'. The goals and activities to meet this aim are grouped under the categories of International / European context; facilitating and contributing to common country approaches and solutions; evidence provision; and reporting.	The WRMP should support the protection and enhancement of biodiversity. The SEA assessment should include criteria relating to the protection of species and habitats.
<i>National Infrastructure Commission (2018) Preparing for a Drier Future, England's Water Infrastructure Needs</i>	
This paper sets out a range of measures that the NIC believe government, water companies and the regulator should take to increase investment in supply infrastructure and encourage more efficient use of water, with the aim to halve leakage by 2050, extend metering and develop plans for a national water network.	The WRMP should take these measure into account where possible and aim to improve water efficiency.
<i>Natural England (2011) UK Geodiversity Action Plan</i>	
The UKGAP sets out a framework for enhancing the importance and role of geodiversity across the UK, and provides a shared context and direction for geodiversity action through a common aim, themes, objectives and targets which link national, regional and local activities. The themes (on which the plan's objectives are based) include: furthering our understanding of geodiversity; gathering and maintaining information on our geodiversity; conserving and managing our geodiversity; inspiring people to value and care for our geodiversity; and sustaining resources for our geodiversity. It also aims to influence planning policy, legislation and development design.	The WRMP should take into account the aims of the UKGAP. The SEA assessment should consider effects of options on geodiversity and outline enhancement and mitigation opportunities where these are identified.
<i>Natural England (2016) A narrative for conserving freshwater and wetland habitats in England</i>	
This narrative provides an overview of circumstances relating to the conservation of freshwater and wetland habitats in England, considering their ecological function, the natural and anthropogenic factors affecting them, the principles that should be applied to their management, and the respective roles of the main policy mechanisms involved in their conservation. It covers all running and standing water habitats, of whatever size, and terrestrial wetland habitats including bogs, fens, swamp and wet woodland.	The WRMP should take into account the findings of the narrative relating to conservation. The SEA should note the impact of the WRMP on various habitats.
<i>Natural England (2016) Conservation 21: Natural England's conservation strategy for the 21st century</i>	
Conservation 21 sets out how Natural England will work to protect England's nature and landscapes for people to enjoy and for the services they provide, in support of Defra's ambitions for the environment.	The WRMP24 should take into account the contents of this strategy.
<i>Natural England and the Environment Agency (2014) Protected Species and Development: Advice for Local Planning Authorities</i>	
This guidance from Natural England and Defra outlines how to assess a planning application when there are protected species on or near a proposed development site. Natural England must be consulted if a development proposal: <ul style="list-style-type: none"> • might affect a site of special scientific interest (SSSI) • needs an environmental impact assessment 	The WRMP and SEA should consider the impact of any proposed developments on protected species.

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<ul style="list-style-type: none"> needs an appropriate assessment under the Habitats Regulations 	
<i>Ofwat (2016) Water 2020</i>	
<p>This document sets out Ofwat’s decisions on the design of its water and wastewater services regulatory framework in England and Wales. The approach aims to deliver the following benefits:</p> <ul style="list-style-type: none"> Greater customer engagement and understanding A sustainable investment model and a fair balance of risk and reward Choice where possible, and ensuring markets are effective for customers A focus on the long-term, targeted and risk-based Support for sustainable improvements in the environment. 	<p>The WRMP should take account of the regulatory framework. The SEA assessment should include criteria relating to the provision of water to customers and environmental protection.</p>
<i>Ofwat (2017) Resilience in the Round</i>	
<p>The report identifies that the water sector has historically invested in options which enhance capacity, especially operational capacity and that whilst additional capacity has an important role in delivering resilience against some threats, companies should start looking at a wider set of factors in order to deliver “smarter” options for the future, including:</p> <ul style="list-style-type: none"> Addressing multiple threats through a single intervention. For example, enhancing network connectivity to reduce the number of customers reliant on a single source of supply. This type of approach can provide water supply resilience to multiple threats such as outages, drought and contamination. Recognising that any intervention will have its own embedded vulnerabilities to future threats. Understanding the vulnerabilities of option types will be critical to planning respective roles in delivering the planned level of resilience. For example, water transfers between areas of surplus and deficit can be a good option but might be vulnerable to wider scale drought impacts and/or contamination. 	<p>The WRMP should consider the content of the report.</p>
<i>UKCP (2018) UK Climate Projections UKCP18</i>	
<p>The UKCP18 Projections provide a basis for studies of impacts and vulnerability and decisions on adaptation to climate change in the UK over the 21st century. Projections are given of changes to climate, and of changes in the marine and coastal environment; recent trends in observed climate are also discussed.</p> <p>The methodology gives a measure of the uncertainty in the range of possible outcomes; a major advance beyond previous national scenarios.</p> <p>The Projections will allow planners and decision-makers to make adaptations to climate change. In order to do so they need as much good information as possible on how climate change will evolve. They are one part of a UK government programme of work to put in place a new statutory framework on, and provide practical support for, adaptation.</p>	<p>The WRMP should take account of UKCP18 projections in its formulation, taking account of climate change in its projections. The SEA should also use UKCP18 projections in the broader assessment of climate change effects and any potential cumulative effects. For example, the ecological requirements of aquatic habitats that may be affected by the WRMP will also be influenced by climate change.</p>
<i>UKTAG: Phase 3 Review of Environmental Standards</i>	
<p>UKTAG prepares technical guidance designed to facilitate consistent implementation of the WFD in the UK.</p> <p>This report identifies standards for certain chemicals known as specific pollutants, developments in assessments of risk to groundwater, non-native species, standards for flows in rivers, standards for levels in lakes, standards for acidity in rivers and standards in intermittent discharges.</p>	<p>The SEA should seek to ensure that the guidance provided by the plan are considered when assessing the WRMP, especially with respect to objectives relating to ecology, water quality and water quantity. The SEA should also ensure the guidance in the</p>

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National Plans and Programmes	
Purpose of the Document, including Objectives and Targets relevant to the WRMP and SEA	Relationships and Influences on the WRMP and the SEA
	plan is used in relation to other related regulations for example the Habitats Directive. The guidance could contribute to the formulation of any criteria for assessing significance of effects.
<i>Waterwise (2017) Water Efficiency Strategy for the UK</i>	
The document sets out a strategy for achieving the vision of a water efficient UK. It suggests policy, regulatory and practical actions that can help in the process of achieving water efficiency.	The WRMP should take into account their possible impacts on water efficiency and aim to improve water efficiency. The SEA objectives should reflect the need improve water efficiency.
<i>Water UK (2016) Water Resources Long-term Planning Framework (2015 – 2065)</i>	
This research modelled the possible effects of climate change, population growth, environmental protection measures and trends in water use to produce a wide range of future scenarios. The results suggest that, in some scenarios, the United Kingdom is facing longer, more frequent and more acute droughts than previously thought. To contain the risk of drought extensive measures to manage demand and enhance supplies of water are needed such as (pp. 194-195): <ul style="list-style-type: none"> • promoting more efficient water use in homes and businesses, through improved building standards and widespread use of smart metering, as well as more ambitious reduction in leakage from water mains; • moving more water from one region to another through existing waterways and new pipelines, building new reservoirs, treating more water for re-use and building desalination plants to make use of sea water. 	Measures identified in the framework should be considered as part of the WRMP. The SEA should assess the impact of the WRMP on water resource and availability.
Regional Plans and Programmes	
Purpose of the Document, including Objectives and Targets relevant to the WRMP and SEA	Relationships and Influences on the WRMPs and the SEA
<i>Water company (Various) Water Resource Management Plans</i>	
WRMPs set out how the company intends to maintain a balance between the supply and demand for water over the long-term planning horizon in each of the water resource zones making up its water supply area. Relevant WRMPs include: <ul style="list-style-type: none"> • Bristol Water • South West Water • Thames Water 	The Severn Trent Water WRMP should take into account the objectives of the neighbouring WRMPs where appropriate and consider any potential cumulative effects.
<i>Water Company (various) Drought Plans</i>	
Drought Plans set out the steps that each water company will take through the stages of developing drought, drought, severe drought and recovery from drought to ensure their supply of water resources. Drought Plans must be produced by all water companies to fulfil their requirements under the Water Act 2003. The Drought Plans relevant to Wessex Water WRMP are: <ul style="list-style-type: none"> • Wessex Water (draft); • South West Water & Bournemouth Water; • Thames Water; and 	The WRMP will need to consider and be in accordance with Wessex Water's emerging drought plan and the drought plans of neighbouring companies, where relevant. The SEA assessment framework should include a guide question on the effects

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Regional Plans and Programmes	
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<ul style="list-style-type: none"> Bristol Water 	<p>of the WRMP on water resources and commentary on whether they affect the water resource zones' ability to manage drought. The baseline should, where appropriate, take into account relevant information from neighbouring plans.</p>
HM Government (2021) South West Inshore and South West Offshore Marine Plans	
<p>The South West Marine Plan introduces a strategic approach to planning within the inshore and offshore waters between the River Severn border with Wales and the River Dart in Devon. It provides a clear, evidence-based approach to inform decision-making by marine users and regulators on where activities might take place within the marine plan areas.</p> <p>The plan contains a series of 13 objectives, grouped under three broad headings, the application of which are supported by the policies of the plan:</p> <p>Achieving a sustainable marine economy</p> <ol style="list-style-type: none"> Infrastructure is in place to support and promote safe, profitable and efficient marine businesses. The marine environment and its resources are used to maximise sustainable activity, prosperity and opportunities for all, now and in the future. Marine businesses are taking long-term strategic decisions and managing risks effectively. They are competitive and operating efficiently. Marine businesses are acting in a way which respects environmental limits and is socially responsible. This is rewarded in the market place. <p>Ensuring a strong, healthy and just society</p> <ol style="list-style-type: none"> People appreciate the diversity of the marine environment, its seascapes, its natural and cultural heritage and its resources and can act responsibly. The use of the marine environment is benefiting society as a whole, contributing to resilient and cohesive communities that can adapt to coastal erosion and flood risk, as well as contributing to physical and mental wellbeing. The coast, seas, oceans and their resources are safe to use. The marine environment plays an important role in mitigating climate change. There is equitable access for those who want to use and enjoy the coast, seas and their wide range of resources and assets and recognition that for some island and peripheral communities the sea plays a significant role in their community. Use of the marine environment will recognise, and integrate with, defence priorities, including the strengthening of international peace and stability and the defence of the United Kingdom and its interests. <p>Living within environmental limits</p> <ol style="list-style-type: none"> Biodiversity is protected, conserved and, where appropriate, recovered, and loss has been halted. Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems. Our oceans support viable populations of representative, rare, vulnerable, and valued species. 	<p>The SEA assessment framework should, where relevant, contain objectives and guide questions that reflect the objectives of the plan. For example, the SEA assessment should include objectives relating to socio-economic wellbeing, human health, climate change, biodiversity, cultural heritage, landscape/seascape and water quality and quantity.</p>

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Sub-Regional/Local Plans and Programmes	
Purpose of the Document, including Objectives and Targets relevant to the WRMP and SEA	Relationships and Influences on the WRMP and the SEA
Area of Outstanding Natural Beauty (AONB) Management Units (various) <i>AONB Management Plans</i>	
<p>The following AONBs are present in the Wessex Water area:</p> <ul style="list-style-type: none"> • Dorset; • Quantock Hills; • Blackdown Hills; • North Wessex Downs; and • Cranbourne Chase & West Wiltshire Downs. <p>The management plans for AONBs contain actions to ensure the protection and enhancement of the landscape.</p>	<p>WRMP options within AONBs should be consistent with the management plan.</p> <p>The SEA assessment framework should consider the effects of options on landscapes, including designated landscapes.</p>
Defra (2010) <i>Eel Management Plans (various)</i>	
<p>Eel management plans describe the current status of Eel populations across river basin districts and assesses compliance with targets set out in EU Council Regs 110/2207.</p> <p>Relevant Eel Management Plans are set out below:</p> <ul style="list-style-type: none"> • Eel Management Plan for Severn River Basin District; • Eel Management Plan for South West River Basin District 	<p>The WRMP should take account of relevant Eel Management Plan actions, where relevant.</p>
Environment Agency (various) <i>Catchment Flood Management Plans</i>	
<p>Catchment Flood Management Plans (CFMPs) give an overview of the flood risk across each river catchment. They recommend ways of managing those risks now and over the next 50-100 years. CFMPs consider all types of inland flooding, from rivers, ground water, surface water and tidal flooding, but not flooding directly from the sea, (coastal flooding), which is covered in Shoreline Management Plans. They also take into account the likely impacts of climate change, the effects of how we use and manage the land, and how areas could be developed to meet our present day needs without compromising the ability of future generations to meet their own needs.</p> <p>Those CFMPs present in the Wessex Water area are:</p> <ul style="list-style-type: none"> • Dorset Stour • Frome and Piddle • West Somerset • Hampshire Avon • North and Mid-Somerset • Parrett • West Dorset • Bristol Avon 	<p>The WRMP should take the CFMPs into account.</p> <p>The SEA should include a guide question relating to flood risk. relating to flood risk.</p>
Environment Agency (various) <i>River Basin Management Plans</i>	
<p>River Basin Management Plans (RBMPs) set out how the water environment will be managed and provide a framework for more detailed decisions to be made. RBMPs set out a more integrated approach to river basin management based on the following principles:</p> <ul style="list-style-type: none"> • Integrate and streamline plans and processes; • Set out a clear, transparent and accessible process of analysis and decision-making; • Focus at the river basin district level; • Work in partnership with other regulators; • Encourage active involvement of a broad cross-section of stakeholders; • Make use of the alternative objectives to deliver sustainable development; • Use Better Regulation principles and consider the cost-effectiveness of the full range of possible measures; • Seek to be even handed across different sectors of society and sectors of industry; 	<p>The WRMP should reflect the broad targets set out in the RBMPs.</p> <p>The SEA objectives should reflect the need to manage water resources on a catchment basis in a sustainable manner.</p>

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Sub-Regional/Local Plans and Programmes	
<p>Purpose of the Document, including Objectives and Targets relevant to the WRMP and SEA</p>	<p>Relationships and Influences on the WRMP and the SEA</p>
<ul style="list-style-type: none"> • Seek to be even handed and transparent in the management of uncertainty; • Develop methodologies and refine analyses as more information becomes available. <p>RBMPs in the Wessex Water area are Severn and South West.</p> <p>RBMPs must be reviewed and updated every 6 years. The previous cycle (cycle 2) of reviews/updates to the RBMPs took place in 2015 and the current RBMPs were published in 2016. The review and update of the current RBMPs is currently underway (cycle 3), with consultation on the draft RBMPs expected to take place in 2021. Previous consultations took place in 2018 and 2020.</p>	
Environment Agency (various) <i>Salmon Action Plans</i>	
<p>Salmon action plans have been produced for the following river catchments in Wessex</p> <ul style="list-style-type: none"> • Hampshire Avon • Dorset • Somerset South and West • South West AWB • South West GW <p>The aim of the action plans is to ensure the objectives set out in the National Salmon Strategy are met. They set out what needs to be done to support and restore salmon populations.</p> <p>Individual targets are set out in each action plan.</p>	<p>The WRMP should consider its effects on salmon populations.</p> <p>The SEA assessment framework should include a guide question relating to the effects of options on fish.</p>
Environment Agency (Various) <i>Abstraction Licencing Strategies</i>	
<p>The Environment Agency is responsible for managing water resources in England and controls how much water is taken from resources with a permitting system. The Environment Agency regulate existing licences and grant new ones. To do this they use:</p> <ul style="list-style-type: none"> • the catchment abstraction management strategy (CAMS) process; • abstraction licencing strategies. <p>Abstraction licencing strategies provide information on where water is available for further abstraction and an indication of how reliable a new abstraction licence may be. The following principal abstraction licencing strategies apply to the Wessex Water supply area:</p> <ul style="list-style-type: none"> • Bristol Avon and North Somerset abstraction licencing strategy (Bristol Avon, Little Avon, Axe and North Somerset Streams Water Framework Directive management area) This supersedes the Bristol Avon catchment abstraction management strategy (CAMS) issued in 2005, the Little Avon CAMS issued in 2008 and the Axe and North Somerset Streams CAMS issued in 2006. • Dorset abstraction licencing strategy (Dorset Water Framework Directive management area) This supersedes the Dorset Stour catchment abstraction management strategy (CAMS) issued in 2004, the Frome, Piddle and Purbeck CAMS in 2005 and West Dorset Streams CAMS in 2007. • Hampshire Avon abstraction licencing strategy (Hampshire Avon catchment) This supersedes the Hampshire Avon catchment abstraction management strategy (CAMS) issued in 2006. • South and West Somerset abstraction licencing strategy (Parrett, Brue and West Somerset area). This supersedes the Parrett catchment abstraction management strategy (CAMS) issued in March 2006, the Tone CAMS issued in March 2004, the West Somerset Streams CAMS issued in 	<p>The WRMP should take the Strategy into account.</p> <p>The SEA should include a guide question relating to sustainable water use.</p>

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Sub-Regional/Local Plans and Programmes	
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March 2007 and the Brue CAMS issued in May 2006.	
<i>Local Biodiversity Action Plans (LBAPs), including Species and Habitats Action Plans (various)</i>	
<p>Wiltshire, Hampshire, South Gloucestershire, South Somerset and Wessex Water all have Biodiversity Action Plans.</p> <p>Each Local Biodiversity Action Plan works on the basis of partnership to identify local priorities and to determine the contribution they can make to the delivery of the national Species and Habitat Action Plan targets. They include targets for increasing and enhancing biodiversity.</p> <p>Species Action Plans set objectives with regard specific species and set out proposed actions and targets along with which agency will be responsible for carrying them out.</p> <p>Habitat Action Plans sets objectives with regard specific UK habitats and sets out proposed actions targets along with which agency will be responsible for carrying them out.</p>	<p>WRMP24 measures should take into account LBAP objectives.</p> <p>The SEA assessment should consider effects of options on biodiversity and outline enhancement and mitigation opportunities where these are identified.</p>
<i>Local Planning Authority (various) Land Use Plans</i>	
<p>The Wessex Water area covers a large number of Local Planning Authorities. These have been identified as:</p> <ul style="list-style-type: none"> • Dorset Council • South Somerset District Council • North Somerset Council • Somerset West and Taunton Council • Sedgemoor District Council • Bath and North East Somerset Council • South Gloucestershire Council • Wiltshire Unitary Authority • Bournemouth, Christchurch and Poole Council (BCP) <p>The main objectives of the existing and emerging Land Use Plans in these areas are related to the sustainable development of the area.</p>	<p>The WRMP should have regard of the Local Plans and emerging Local Plans.</p> <p>The SEA assessment framework should consider the effects of the WRMP on the achievement of the Plans' visions and the effects of options on sustainable land use.</p>
<i>National Park Management Plans (various)</i>	
<p>The following National Parks are present in the Wessex Water area:</p> <ul style="list-style-type: none"> • Exmoor National Park; and • New Forest National Park <p>The management plans for National Parks contain actions to ensure the protection and enhancement of the landscape and natural environment of these areas.</p>	<p>WRMP options within the National Parks should be consistent with the respective management plan.</p> <p>The SEA assessment framework should consider the effects of options on landscapes and the natural environment, including designated areas. Proposed extensions to the National Park boundaries should also be recognised where appropriate.</p>
<i>Shoreline Management Plans (various)</i>	
<p>Shoreline Management Plans are prepared in England and Wales. They are developed by Coastal Groups with members drawn from local authorities and other stakeholders. They identify the most sustainable approach to managing the flood and coastal risks to the coastline in the short term (up to 20 years), medium term (20 to 50 years) and long term (50 to 100 years).</p> <p>Relevant plans include:</p> <ul style="list-style-type: none"> • Poole & Christchurch Bay Shoreline Management Plan • The Durlston Head to Rame Head Shoreline Management Plan • Hartland Point to Anchor Head Shoreline Management Plan 	<p>WRMP measures should take into account the policies and actions of the SMP.</p> <p>Where appropriate, the SEA should consider the cumulative effect of SMP policies and actions and WRMP measures.</p>

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Sub-Regional/Local Plans and Programmes	
Purpose of the Document, including Objectives and Targets relevant to the WRMP and SEA	Relationships and Influences on the WRMP and the SEA
<i>Natural England National Character Area (NCA) Profiles (various)</i>	
<p>There are over 24 NCAs within Wessex Water's operating boundary. Each of these have individual objective relating to specific landscapes, habitats and species.</p> <p>Generalised objectives for each of these include:</p> <ul style="list-style-type: none"> • Conserve characteristic historic structures • Protect the area's rich and diverse archaeology • Protect the area's high levels of tranquility • Protect, manage and enhance the good rights of way network • Manage and enhance existing habitats • Encourage the maintenance of traditional land management practices • Protect, and encourage sympathetic management • Protect and manage geological features • Plan for climate change mitigation and adaptation 	<p>The WRMP may have an effect on NCAs.</p> <p>The SEA should include objectives that take into account the objectives of the NCAs where relevant (e.g. manage and enhance existing habitats).</p>
<i>Public Rights of Way Improvement Plans (ROWIPs)</i>	
<p>Most local authorities have a rights of way improvement plan. The plan must explain how improvements made by the local authority to the public rights of way network in their area will provide a better experience for these users:</p> <ul style="list-style-type: none"> • walkers • cyclists • horse riders • horse and carriage drivers • people with mobility problems • people using motorised vehicles, e.g. motorbikes <p>Objectives include those associated with each local authority's rights of way improvement plans.</p>	<p>The WRMP may have the potential to affect the objectives of the ROWIPs.</p> <p>The SEA should include objectives that take into account the objectives of the ROWIPs where relevant.</p>
<i>World Heritage Site Management Plans (various)</i>	
<p>World Heritage Site Management Plans are a formal requirement of both UNESCO and the UK Government for managing World Heritage Sites. They are public documents which outline the aims, policies and priority objectives for managing World Heritage Sites. They also outline the reasons for the World Heritage designation of sites and how they are protected and managed.</p> <p>Relevant plans include:</p> <ul style="list-style-type: none"> • The City of Bath World Heritage Site Management Plan (2016-2022) • Dorset & East Devon Coast (Jurassic Coast) World Heritage Site Management/Partnership Plan 2020-25 • The Stonehenge, Avebury and Associated Sites World Heritage Site Management Plan 2015 	<p>The WRMP should seek to contribute towards the protection of World Heritage Sites.</p> <p>The SEA assessment framework should include objectives and guide questions relating to the conservation and protection of World Heritage Sites.</p>
<i>Environment Agency (2016) Flood Risk Management Plans (various)</i>	
<p>Flood Risk Management Plans (FRMPs) give an overview of the flood risk across each river catchment. They recommend ways of managing those risks now and over the next 50-100 years. FRMPs consider all types of inland flooding, from rivers, groundwater, surface water and tidal flooding. They also take into account the likely impacts of climate change, the effects of how we use and manage the land, and how areas could be developed to meet our present day needs without compromising the ability of future generations to meet their own needs. Policies for managing flood risk and proposed actions for implementation are set out for each of sub-areas within the FRMPs.</p>	<p>The WRMP should take FRMPs into account.</p> <p>The SEA should include a guide question relating to flood risk.</p>

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Sub-Regional/Local Plans and Programmes	
Purpose of the Document, including Objectives and Targets relevant to the WRMP and SEA	Relationships and Influences on the WRMP and the SEA
Those FRMPs present in the Wessex Water area South West and Severn.	

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Appendix D

Definitions of Significance

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Proposed Objective	Proposed Guide Questions	Effect	Description	Illustrative Guidance
1. To protect, restore and enhance biodiversity, including designated sites of nature conservation interest, protected habitats and species, enhance ecosystem services and resilience and deliver a net biodiversity gain.	<p><i>Will it protect, restore and where possible, enhance the most important sites for nature conservation (e.g. internationally or nationally designated conservation sites such as SACs, SPAs, Ramsar, SSSIs and NNRS)?</i></p> <p><i>Will it protect, restore and where possible enhance non-designated sites and local biodiversity?</i></p> <p><i>Will it lead to a change in the ecological quality of habitats due to changes in water quality and/or quantity?</i></p> <p><i>Will it alter geomorphological forms and processes affecting physical habitat for aquatic ecosystems?</i></p> <p><i>Will it maintain and enhance the green infrastructure network and the biodiversity it supports?</i></p> <p><i>Will it protect, restore or enhance natural capital and ecosystem services?</i></p> <p><i>Will it provide opportunities to deliver biodiversity net gain (e.g. new habitat creation, restoration or connectivity)?</i></p> <p><i>Will the activity result in any permanent losses to natural capital</i></p>	+++	Significant Positive	<p><i>The option would result in a significant enhancement on the quality of designated sites / habitats due to changes in flow or groundwater levels, water quality or habitat quality and availability.</i></p> <p><i>The option would result in a significant increase in the population of, or habitats for, a priority species.</i></p> <p><i>Effects could be caused by beneficial changes in water flows/water quality, or large amounts of creation or enhancement of habitat, promoting a major increase in ecosystem structure and function.</i></p> <p><i>The option would lead to a major increase in natural capital/ecosystem resilience and enhancement (as measured by the NCA).</i></p> <p><i>The option would lead to a biodiversity net gain of greater than 10% (as measured by the BNG assessment).</i></p> <p><i>The option would result in a significant reduction of INNS.</i></p>
		++	Moderate Positive	<p><i>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.</i></p> <p><i>The option would result in a moderate increase in the population of, or habitats for, a priority species.</i></p> <p><i>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 and function.</i></p> <p><i>The option would lead to a moderate increase in natural capital/ecosystem resilience and enhancement (as measured by the NCA).</i></p> <p><i>The option would lead to a biodiversity net gain of 10% (as measured by the BNG assessment).</i></p> <p><i>The option would result in a moderate reduction of INNS.</i></p>
		+	Positive	<p><i>The option would result in a minor enhancement of 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.</i></p> <p><i>The option would result in a minor increase in the population of, or habitats for, a priority species.</i></p> <p><i>Effects could be caused by beneficial changes in water flows/water quality, or small amounts of creation or enhancement of habitat, promoting a minor increase in ecosystem structure and function.</i></p> <p><i>The option would lead to a minor increase in natural capital/ecosystem resilience and enhancement (as measured by the NCA).</i></p> <p><i>The option would lead to a biodiversity net gain of less than 10% (as measured by the BNG assessment).</i></p> <p><i>The option would result in a minor reduction of INNS.</i></p>

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Proposed Objective	Proposed Guide Questions	Effect	Description	Illustrative Guidance
	<p><i>or irreplaceable habitats (e.g. Ancient Woodland)?</i></p> <p><i>Will it limit, reduce or eliminate the risk of spread of Invasive Non-Native Species (INNS)?</i></p> <p><i>Will it provide opportunities for climate adaptation and protect the climate resilience of vulnerable and priority sites?</i></p>	0	Neutral	<p><i>The option would not result in any effects on designated or non-designated sites including habitats and/or species.</i></p> <p><i>The option would have no effect on natural capital, biodiversity net gain or ecosystem services.</i></p> <p><i>The option would have no effect on INNS.</i></p>
		-	Negative	<p><i>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.</i></p> <p><i>The option would result in a minor decrease in the population of, or habitats for, a priority species.</i></p> <p><i>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 and function.</i></p> <p><i>The option would lead to a minor decrease in natural capital/ecosystem resilience (as measured by the NCA).</i></p> <p><i>The option would lead to a biodiversity net loss of less than 10% (as measured by the BNG assessment).</i></p> <p><i>The option would result in a minor increase in the risks of INNS.</i></p>
		--	Moderate Negative	<p><i>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.</i></p> <p><i>The option would result in a moderate decrease in the population of, or habitats for, a priority species.</i></p> <p><i>Effects could be caused by detrimental changes in flows/water quality, or moderate loss or degradation of habitat leading to a moderate loss of ecosystem structure and function.</i></p> <p><i>The option would lead to a moderate decrease in natural capital/ecosystem resilience (as measured by the NCA).</i></p> <p><i>The option would lead to a biodiversity net loss of 10% (as measured by the BNG assessment).</i></p> <p><i>The option would result in a moderate increase in the risks of INNS (e.g. movement of water between catchments, uncertainty whether INNS treatment proposed).</i></p>
		---	Significant Negative	<p><i>The option would result in a significant 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 e.g. the HRA identifies a significant negative effect.</i></p> <p><i>The option would result in a significant decrease in the population of, or habitats for, a priority species.</i></p> <p><i>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.</i></p>

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Proposed Objective	Proposed Guide Questions	Effect	Description	Illustrative Guidance
				<p>The option would lead to a significant decrease in natural capital/ecosystem resilience (as measured by the NCA).</p> <p>The option would lead to a biodiversity net loss of greater than 10% (as measured by the BNG assessment).</p> <p>The option would result in a significant increase in the risks of INNS (e.g. movement of water between catchments, INNS present in source water body and no INNS treatment proposed).</p>
		?	Uncertain	From the level of information available the effect that the option would have on this objective is uncertain
2. To protect and enhance soil quantity, quality and functionality and geodiversity and contribute to the sustainable use of land.	Will it minimise the loss of best and most versatile agricultural land? Will the option affect soil contamination or involve remediation?	+++	Significant Positive	<p>The option would involve the significant use of previously developed land (>1ha to 5ha).</p> <p>The option would result in a major enhancement on the quality of soils as a result of remediation, implementation of catchment approaches, or other measures.</p>
	Will it avoid damage to, and protect and enhance (where possible) protected sites designated for their geological interest (e.g. GCR sites, SSSI and RIGS) and features of wider geodiversity interest?	++	Moderate Positive	<p>The option would involve the moderate use of previously developed land (>1ha to 5ha).</p> <p>The option would result in a moderate enhancement on the quality of soils as a result of remediation, implementation of catchment approaches, or other measures.</p>
	Will it ensure efficient use of land (e.g. make use of previously developed land)?	+	Positive	<p>The option would involve the limited use of previously developed land (<1ha).</p> <p>The remaining land take would have no effect on soils or existing land use.</p> <p>The option results in the remediation of contaminated land.</p>
	Will it require below ground works leading to land sterilisation?	0	Neutral	The option would not result in any effects on soils or land use.

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Proposed Objective	Proposed Guide Questions	Effect	Description	Illustrative Guidance
	<p><i>Will it contribute towards a catchment-wide approach to land management?</i></p> <p><i>Will it avoid adverse effects on other land uses (such as forestry)?</i></p>	-	Negative	<p><i>The option would result in a minor temporary or permanent loss of best and most versatile agricultural land or is in conflict with existing land use.</i></p> <p><i>The option would result in land contamination.</i></p> <p><i>The option would result in a minor negative effect on a site designated for their geological interest</i></p>
		--	Moderate Negative	<p><i>The option would result in a moderate temporary or permanent loss of best and most versatile agricultural land or is in substantial conflict with existing land use.</i></p> <p><i>The option would result in land contamination.</i></p> <p><i>The option would result in a moderate negative effect on a site designated for their geological interest</i></p> <p><i>The option would be partially overlying mineral resources leading to partial mineral sterilisation.</i></p>
		---	Significant Negative	<p><i>The option would result in a major permanent loss of best and most versatile agricultural land or is in substantial conflict with existing land use.</i></p> <p><i>The option would result in land contamination.</i></p> <p><i>The option would result in a major negative effect on a site designated for their geological interest</i></p> <p><i>The option would be directly overlying mineral resources leading to mineral sterilisation.</i></p>
		?	Uncertain	<p><i>From the level of information available the effect that the option would have on this objective is uncertain</i></p>
3. To maintain, protect and enhance surface and ground water resource levels, flows and quality	<p><u>Quantity</u></p> <p><i>Will it be consistent with the Catchment Abstraction Management Strategies (CAMS) water availability assessment?</i></p> <p><i>Will it result in unsustainable changes to flow regimes, channel morphologies, wetted width or river levels?</i></p>	+++	Significant Positive	<p><i>The option would result in addressing failure of WFD Good Ecological Status / Good Ecological Potential.</i></p>
		++	Moderate Positive	<p><i>The option would contribute to addressing failure of WFD Good Ecological Status / Good Ecological Potential.</i></p>

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Proposed Objective	Proposed Guide Questions	Effect	Description	Illustrative Guidance
	Will it result in unsustainable changes to groundwater levels? Will it support the achievement of relevant environmental objectives set out in the SW River Basin Management Plan?	+	Positive	The option would contribute to a minor improvement in surface/coastal water quality or in groundwater quality.
	<u>Quality</u> Will it protect and improve surface, groundwater, estuarine and coastal water quality?	0	Neutral	The option would have no discernible effect on river flows or on groundwater levels. The option would have no discernible effect on surface/coastal water quality or on groundwater quality. The option would not lead to a change in WFD classification.
	Will it be Water Framework Directive (WFD) compliant (e.g. prevent the deterioration of WFD waterbody status (or potential))? Will it support the achievement of WFD protected area objectives? Will it support the future achievement of good status for a water body?	-	Negative	The CAMS/ALS indicates minor restrictions on water available for use. The option would result in minor short-term decreases in river flows, wetted width, depth, and velocity over small distances. The option would result in minor decreases in groundwater levels. The option would have a minor effect on river and/or coastal water quality and lead to short term or intermittent effects on receptors (e.g., designated habitats, protected species or recreational users of rivers and the coastline) that could not be avoided but could be mitigated. The option would result in minor decreases in groundwater quality.
	Will it support the achievement of relevant environmental objectives set out in the SW River Basin Management Plan? Will the option prevent nutrient loading in water bodies?	--	Moderate Negative	The CAMS/ALS indicates restricted water available for use. The option would result in medium-term, moderate decreases in river flows, wetted width, depth, and velocity over moderate distances. The option would result in moderate decreases in groundwater levels. The option would have a moderate effect on river and/or coastal water quality and lead to long term or continuous effects on receptors (e.g., designated habitats, protected species or recreational users of rivers and the coastline) that could not reasonably be mitigated. The option would result in the likely deterioration of WFD classification. The option would result in moderate decreases in groundwater quality.
		---	Significant Negative	The CAMS/ALS indicates no water available for use. The option would result in major decreases in river flows over the long-term affecting significant stretches of river. The option would result in major decreases in groundwater levels.

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Proposed Objective	Proposed Guide Questions	Effect	Description	Illustrative Guidance
				<p><i>The option would have a major effect on river and/or coastal water quality and lead to long term or continuous effects on receptors (e.g., designated habitats, protected species or recreational users of rivers and the coastline) that could not reasonably be mitigated.</i></p> <p><i>The option results in the deterioration of WFD classification.</i></p> <p><i>The option would result in major decreases in groundwater quality.</i></p>
		?	Uncertain	<p><i>From the level of information available the effect that the option would have on this objective is uncertain</i></p>
4. To reduce or manage flood risk.	<p><i>Will the option be at risk of flooding now or in the future?</i></p> <p><i>Will it have the potential to cause or exacerbate flooding in the catchment area including the risks to people and property, now or in the future?</i></p> <p><i>Will it have the potential to help alleviate or mitigate flooding in the catchment area including to people and property now or in the future (e.g. will it increase catchment storage, or provide opportunities to improve flood risk management)?</i></p> <p><i>Will it promote the use of sustainable drainage systems?</i></p>	+++	Significant Positive	<p><i>The option would result in a major improvement to flood risk.</i></p>
		++	Moderate Positive	<p><i>The option would result in a moderate improvement to flood risk.</i></p>
		+	Positive	<p><i>The option would involve the construction of above-ground water supply infrastructure which help alleviate flooding in the catchment.</i></p>
		0	Neutral	<p><i>The option would involve the construction of above-ground water supply infrastructure, but is located outside floodplain areas. It is anticipated that the option would neither cause nor exacerbate flooding in the catchment.</i></p>

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Proposed Objective	Proposed Guide Questions	Effect	Description	Illustrative Guidance
		-	Negative	<i>The option would involve the construction of above-ground water supply infrastructure which would be wholly or partially located within Flood Zone 2.</i>
		--	Moderate Negative	<i>The option would involve the construction of above-ground water supply infrastructure which would be partially (but < 40% by area) located within Flood Zone 3 and/or site is at medium risk of surface water flooding.</i>
		---	Significant Negative	<i>The option would involve the construction of above-ground water supply infrastructure which would be wholly or partially (≥40% of the site) within flood zone 3a or 3b and/or site is at high risk of surface water flooding.</i>
		?	Uncertain	<i>From the level of information available the effect that the option would have on this objective is uncertain</i>
5. To minimise emissions of pollutant gases and particulates and enhance air quality.	<i>Will it maintain or enhance ambient air quality, keeping pollution below Local Air Quality Management thresholds (e.g. in Air Quality Management Areas or sensitive habitats)?</i>	+++	Significant Positive	<i>The option would result in a major enhancement of the air quality within one or more AQMAs</i>
		++	Moderate Positive	<i>The option would result in a moderate enhancement of the air quality within one or more AQMAs</i>

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Proposed Objective	Proposed Guide Questions	Effect	Description	Illustrative Guidance
		+	Positive	<i>The option would result in an enhancement of the air quality</i>
		0	Neutral	<i>The option would not result in any effects on Air Quality and AQMAs. The option would generate an average number of vehicle movements of < 5 per day (for either construction or operation)</i>
		-	Negative	<i>The option would result in a decrease of the air quality. The option would generate an average number of vehicle movements of between 5 and 35 per day (so an average max of <5 per hour, for either construction or operation).</i>
		--	Moderate Negative	<i>The option would result in a decrease of the air quality within one or more AQMAs The option would generate an average number of vehicle movements of between 35 to <70 per day (so an average max of between 5 and <10 per hour, for either construction or operation).</i>
		---	Significant Negative	<i>The option would result in a major decrease in the air quality within one or more AQMAs The option would generate an average number of vehicle movements of between ≥ 70 per day (so an average of ≥ 10 per hour, for either construction or operation).</i>
		?	Uncertain	<i>From the level of information available the effect that the option would have on this objective is uncertain</i>

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Proposed Objective	Proposed Guide Questions	Effect	Description	Illustrative Guidance
6. To reduce embodied and operational greenhouse gas emissions.	<p><i>Will it have a low level of embodied carbon?</i></p> <p><i>Will it reduce or minimise greenhouse gas emissions?</i></p> <p><i>Will the option affect carbon sequestration?</i></p>	+++	Significant Positive	<p><i>The option would reduce operational carbon emissions by ≥ 1,000 tonnes CO2e/annum e.g., it would provide new infrastructure/assets that maximise the use of renewable energy sources.</i></p> <p><i>The option would result in a major increase in carbon sequestration.</i></p>
		++	Moderate Positive	<p><i>The option will reduce operational carbon emissions by between 100 and <1,000 tonnes CO2e/annum.</i></p> <p><i>The option will result in a moderate increase in carbon sequestration</i></p>
		+	Positive	<p><i>The option will reduce operational carbon emissions by ≤ 100 tonnes CO2e/annum</i></p>
		0	Neutral	<p><i>The option would have no or very minor effects on greenhouse gas emissions (increase of emissions up to 10 tonnes CO2e).</i></p>
		-	Negative	<p><i>The construction of the option would use of materials with a minor amount of embodied carbon (10 to <1,000 tonnes CO2e).</i></p> <p><i>The option would result in a minor or temporary increase in operational carbon emissions (10 to <500 tonnes CO2e/annum).</i></p>
		--	Moderate Negative	<p><i>The construction of the option would use of materials with a moderate amount of embodied carbon (1,000 to 7,500 tonnes CO2e).</i></p> <p><i>The option would result in a moderate increase in operational carbon emissions (500-2,000 tonnes CO2e/annum).</i></p> <p><i>The option will result in a moderate release of previously sequestered carbon.</i></p>

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Proposed Objective	Proposed Guide Questions	Effect	Description	Illustrative Guidance
		---	Significant Negative	<p><i>The construction of the option would use of materials with a major amount of embodied carbon (>7,500 tonnes CO2e).</i></p> <p><i>The option would result in major or long term increases in operational carbon emissions (>2,000 tonnes CO2e/annum).</i></p> <p><i>The option would result in a major release of previously sequestered carbon.</i></p>
		?	Uncertain	<p><i>From the level of information available the effect that the option would have on this objective is uncertain</i></p>
7. To adapt and improve resilience to the threats of climate change.	<p><i>Will it improve resilience and/or adaptability to the likely effects of climate change, e.g., by increasing resilience of water supplies or catchments?</i></p> <p><i>Will it increase environmental resilience (including that of natural ecosystems) to the effects of climate change including to impacts on flood risk and water quality?</i></p> <p><i>Will coastal erosion have consequences on the operation of this option now or in the future, taking account of expected climate change sea level rise?</i></p>	+++	Significant Positive	<p><i>The option would have a major positive effect on increasing the resilience/decreasing the vulnerability to climate change effects.</i></p>
		++	Moderate Positive	<p><i>The option would have a moderate positive effect on increasing the resilience/decreasing the vulnerability to climate change effects.</i></p>
		+	Positive	<p><i>The option would have a minor positive effect on increasing the resilience/decreasing the vulnerability to climate change effects.</i></p>
		0	Neutral	<p><i>The option would have no effect on resilience/decrease vulnerability to climate change effects</i></p>

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Proposed Objective	Proposed Guide Questions	Effect	Description	Illustrative Guidance
		-	Negative	<i>The option would not increase resilience/decrease vulnerability to climate change effects.</i>
		--	Moderate Negative	<i>The option would have a moderate negative effect on resilience/decreasing vulnerability to climate change effects.</i>
		---	Significant Negative	<i>The option would have a major negative effect on resilience/significantly decrease vulnerability to climate change effects.</i>
		?	Uncertain	<i>From the level of information available the effect that the option would have on this objective is uncertain</i>
8. To promote a sustainable economy and maintain and enhance the economic and social well-being of local communities.	<i>Will it ensure that sufficient water resources infrastructure is in place to support predicted population increases?</i>	+++	Significant Positive	<i>The option would provide an additional design capacity of ≥ 10MI/d. The option would result in a significant increase in construction jobs (capital spend of ≥ £15m).</i>
	<i>Will it ensure sufficient water resource infrastructure is in place to meet other users needs (e.g. agriculture, tourists, visitors)?</i>	++	Moderate Positive	<i>The option would provide an additional design capacity of 5MI/d to <10MI/d. The option would result in a moderate increase in construction jobs (capital spend £5m to <£15m).</i>

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Proposed Objective	Proposed Guide Questions	Effect	Description	Illustrative Guidance
	<p>Will it ensure that an affordable supply of water is maintained, and vulnerable customers protected?</p> <p>Will it contribute to sustaining and growing the local and regional economy?</p> <p>Will it avoid disruption through effects on the transport network?</p> <p>Will it avoid negative effects on built assets/ existing infrastructure including transport?</p>	+	Positive	<p>The option would provide an additional design capacity of 1MI/d to <5MI/d.</p> <p>The option would result in a minor increase in construction jobs (capital spend £1m to <£5m).</p>
		0	Neutral	<p>The option would have no effect on local employment opportunities, the regional or local economy, or on recreational facilities.</p> <p>The option would provide an additional design capacity of <1 MI/d.</p>
		-	Negative	<p>It is not expected that any options will have a negative effect on employment opportunities, the economy or design capacity.</p> <p>The option would result in a minor disruption on built assets and infrastructure, including transport.</p>
		--	Moderate Negative	<p>It is not expected that any options will have a negative effect on employment opportunities, the economy or design capacity.</p> <p>The option would result in a moderate disruption on built assets and infrastructure, including transport.</p>
		---	Significant Negative	<p>It is not expected that any options will have a negative effect on employment opportunities, the economy or design capacity.</p> <p>The option would result in a major disruption on built assets and infrastructure, including transport.</p>
		?	Uncertain	<p>From the level of information available the effect that the option would have on this objective is uncertain</p>

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Proposed Objective	Proposed Guide Questions	Effect	Description	Illustrative Guidance
9. To protect and enhance human health and well-being.	<p><i>Will it ensure the continuity of a safe and secure drinking water supply and quality?</i></p> <p><i>Will it maintain surface water and bathing water quality within statutory standards?</i></p> <p><i>Will it help to promote healthy communities and avoid risks to health and wellbeing (e.g. due to noise resulting from construction traffic or disruption to safe and reliable water/sewerage services)?</i></p> <p><i>Will it protect and enhance public access to, and enjoyment of, green and blue infrastructure, open space/recreational facilities and the natural and historic environment, and in doing so help promote healthy lifestyles including mental well-being?</i></p>	+++	Significant Positive	<p><i>The option would lead to a major increase in design capacity (≥ 10 MI/d) of drinking water, would have a sustained positive effect on the health of local communities and would ensure that surface water and bathing water quality is maintained within statutory limits.</i></p> <p><i>The option would provide new, and/or significantly enhances existing, recreational facilities, publicly accessible greenspace and/or tourism within the operational area.</i></p>
		++	Moderate Positive	<p><i>The option would lead to a moderate increase in design capacity (5MI/d to <10MI/d) of drinking water, would have a positive effect on the health of local communities and would ensure that surface water and bathing water quality is maintained within statutory limits.</i></p> <p><i>The option would have a moderate positive effect on existing, recreational facilities, publicly accessible greenspace and/or tourism within the operational area.</i></p>
		+	Positive	<p><i>The option would lead to a minor increase in design capacity (1MI/d to <5MI/d) of drinking water, would have a temporary positive effect on the health of local communities and would ensure that surface water and bathing water quality is maintained within statutory limits.</i></p> <p><i>The option would have a minor positive effect on existing, recreational facilities, publicly accessible greenspace and/or tourism within the operational area.</i></p>
		0	Neutral	<p><i>The option would not result in any effects on human health and existing recreational facilities and/or tourism.</i></p> <p><i>The option would not result in any effects on existing recreational facilities and/or tourism.</i></p>
		-	Negative	<p><i>The option would result in the deterioration of surface water or bathing water quality and would have a temporary effect on human health (e.g., noise or air quality).</i></p> <p><i>The option would reduce the availability and quality of existing recreational facilities and/or tourism within the operational area.</i></p>
		--	Moderate Negative	<p><i>The option would have a moderate long-term negative effect on human health (e.g., noise or air quality).</i></p> <p><i>The option would result in the permanent removal of existing recreational facilities, publicly accessible greenspace and/or tourism within the operational area.</i></p>

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Proposed Objective	Proposed Guide Questions	Effect	Description	Illustrative Guidance
		---	Significant Negative	<i>The option would have a significant long-term effect on human health (e.g., noise or air quality). The option would result in the removal of existing recreational facilities, publicly accessible greenspace and/or tourism within the operational area.</i>
		?	Uncertain	<i>From the level of information available the effect that the option would have on this objective is uncertain</i>
10. To promote and enhance the sustainable and efficient use of resilient water resources.	<i>Will it lead to reduced leakage from the supply network? Will it improve efficiency in water consumption? Will it ensure sustainable abstractions, taking account of water resource availability?</i>	+++	Significant Positive	<i>The option will result in a significant reduction in the per capita consumption (pcc) of water. The option would involve a major reduction in leakage from the supply network The option is a water efficiency option with a design capacity of >10 MI/d. The option would result in a major improvement in water efficiency and resilience.</i>
	<i>Will it increase the resilience of water resources, now and into the future? Will it contribute towards improving the awareness of water sustainability?</i>	++	Moderate Positive	<i>The option will result in a moderate reduction in the pcc of water. The option would involve a moderate reduction in leakage reduction from the supply network The option is a water efficiency option with a design capacity of 5 to 10MI/d. The option would result in a moderate improvement in water efficiency and resilience.</i>
		+	Positive	<i>The option will result in a minor reduction in the pcc of water. The option would involve reducing leakage from the supply network The option is a water efficiency option with a design capacity of <5 MI/d. The option would result in a minor improvement in water efficiency and resilience.</i>
		0	Neutral	<i>The option will have no effect on sustainable and efficient use of resilient water resources.</i>

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Proposed Objective	Proposed Guide Questions	Effect	Description	Illustrative Guidance
		-	Negative	<i>The option would result in minor decreases in water efficiency and reduces resilience.</i>
		--	Moderate Negative	<i>The option would result in moderate decreases in water efficiency and reduces resilience.</i>
		---	Significant Negative	<i>The option would result in major decreases in water efficiency and reduces resilience.</i>
		?	Uncertain	<i>From the level of information available the effect that the option would have on this objective is uncertain</i>
11. To minimise waste, promote resource efficiency and move towards a circular economy.	<i>Will it make use of existing infrastructure?</i>	+++	Significant Positive	<i>The option would make extensive reuse of existing built assets and infrastructure.</i>
	<i>Will it promote the re-use and recycling of waste materials and reduce the proportion of waste sent to landfill?</i>			<i>The option will re-use or recycle substantial quantities of waste materials and any new infrastructure will incorporate substantial sustainable design measures and materials.</i>
	<i>Will it help to encourage sustainable design or use of sustainable materials (e.g. supplied from local resources)?</i>	++	Moderate Positive	<i>The option would make reuse of existing built assets and infrastructure. The option would re-use or recycle moderate quantities of waste materials and any new infrastructure would incorporate some sustainable design measures and materials.</i>

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Proposed Objective	Proposed Guide Questions	Effect	Description	Illustrative Guidance
		+	Positive	<i>The option would re-use or recycle limited quantities of waste materials and any new infrastructure would incorporate limited sustainable design measures and materials.</i>
		0	Neutral	<i>The option would largely rely on existing infrastructure and only require small quantities of additional materials to realise design capacity e.g. quantities of concrete < 100 tonnes.</i>
		-	Negative	<i>The option would require new infrastructure requiring the use of quantities of concrete between 100 tonnes and <1,000 tonnes The option would have limited opportunities for the re-use or recycling of waste materials. There would be limited opportunities for sustainable design or the use of sustainable materials.</i>
		--	Moderate Negative	<i>The option would require new infrastructure requiring the use of moderate quantities of concrete (1,000 tonnes to <10,000 tonnes). The option would have limited opportunities for the re-use or recycling of waste materials.</i>
		---	Significant Negative	<i>The option would require significant new infrastructure that cannot be provided through the re-use or recycling of waste materials. Significant quantities of concrete would be required ≥ 10,000 tonnes. There are no opportunities for sustainable design or the use of sustainable materials.</i>
		?	Uncertain	<i>From the level of information available the effect that the option would have on this objective is uncertain</i>

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Proposed Objective	Proposed Guide Questions	Effect	Description	Illustrative Guidance
12. To conserve and enhance the historic environment including the significance of heritage assets and their settings and archaeologically important sites.	<p><i>Will it avoid damage to, conserve or enhance the historic environment, including heritage assets and their settings e.g. World Heritage Sites, scheduled monuments, historic buildings, conservation areas, features, places and spaces?</i></p> <p><i>Will the hydrological setting of water-dependent assets be altered, such as important wetland areas with potential for paleo-environmental deposits?</i></p> <p><i>Will it avoid damage to important wetland areas with potential for paleoenvironmental deposits?</i></p> <p><i>Will it improve access, value, understanding or enjoyment of heritage assets and culturally/historically important assets in the region?</i></p>	+++	Significant Positive	<i>The option will result in enhancements to designated heritage assets and/or their setting, fully realising the significance and value of the asset, such as: Securing repairs or improvements to heritage assets, especially those identified in the Historic England Buildings/Monuments at Risk Register; Improving interpretation and public access to important heritage assets.</i>
		++	Moderate Positive	<i>The option will result in enhancements to designated heritage assets and/or their setting. Improving interpretation and public access to important heritage assets.</i>
		+	Positive	<i>The option will result in enhancements to non-designated heritage assets and/or their setting.</i>
		0	Neutral	<i>The option will have no effect on cultural heritage assets or archaeology.</i>
		-	Negative	<i>The option will result in the loss of significance of undesignated heritage assets and/or their setting, notwithstanding remedial recording of any elements affected. There will be limited damage to known, undesignated archaeology important sites with a consequent loss of significance only partly mitigated by archaeological investigation</i>
		--	Moderate Negative	<i>The option will result in the loss of significance of undesignated heritage assets and/or their setting, notwithstanding remedial recording of any elements affected. The option will diminish of significance of designated heritage assets and/or their setting, notwithstanding remedial recording of any elements affected.</i>

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Proposed Objective	Proposed Guide Questions	Effect	Description	Illustrative Guidance
		---	Significant Negative	<p>The option would diminish the significance of designated heritage assets and/or their setting such as:</p> <ul style="list-style-type: none"> Demolition or further deterioration in the condition of designated heritage assets especially those identified in the Historic England Buildings/Monuments at Risk Register; Loss of public access to important heritage assets and lack of appropriate interpretation. <p>There would be significant damage to known, designated archaeological sites/remains or geologically important sites with a consequent loss of significance only partly mitigated by archaeological investigation.</p>
		?	Uncertain	From the level of information available the effect that the option would have on this objective is uncertain
13. To conserve, protect and enhance landscape, seascape and townscape character and visual amenity.	<p>Will it avoid adverse effects to, and enhance where possible, protected/designated landscapes and the settings of designated landscapes_(including woodlands) e.g. National Parks, AONBs?</p> <p>Will it help to protect and improve non-designated areas of natural beauty and distinctiveness (e.g., woodlands) and avoid the loss of landscape features and local distinctiveness?</p> <p>Will it protect and enhance landscape character, townscape, seascape and green infrastructure?</p> <p>Will it minimise adverse visual impacts?</p>	+++	Significant Positive	The option results in new, above ground infrastructure that significantly enhances the local landscape, townscape or seascape.
		++	Moderate Positive	The option results in new, above ground infrastructure that has a moderate positive effect on the local landscape, townscape or seascape
		+	Positive	The option results in new, above ground infrastructure that has a minor positive effect on the local landscape, townscape or seascape.
		0	Neutral	The option would not result in any effects on the local landscape, townscape or seascape

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Proposed Objective	Proposed Guide Questions	Effect	Description	Illustrative Guidance
		-	Negative	<i>The option results in new, above ground infrastructure that has a minor negative effect on the local landscape, townscape or seascape.</i>
		--	Moderate Negative	<i>The option would have a moderate negative effect on a designated landscape or feature (i.e. significant visually intrusive infrastructure) whose effects could not be reasonably mitigated. The option results in new, above ground infrastructure that has a moderate negative effect on the local landscape, townscape or seascape.</i>
		---	Significant Negative	<i>The option would have a significant negative effect on a designated landscape or feature (i.e. significant visually intrusive infrastructure) whose effects could not be reasonably mitigated. The option results in new, above ground infrastructure that has a significant negative effect on the local landscape, townscape or seascape.</i>
		?	Uncertain	<i>From the level of information available the effect that the option would have on this objective is uncertain</i>

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Appendix E

Revised Feasible Options Assessment Matrices

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Appendix F

Preferred Options Assessment Matrices

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