Severn Trent Water Ltd

Water Resources Management Plan 2019

Strategic Environmental Assessment
Scoping Report

Report for Severn Trent Water Ltd

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Customer:

Severn Trent Water Ltd

Customer reference:

SVT/SEA

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1 Introduction

1.1 Background and Purpose of Report

This Scoping Report sets out the approach to the Strategic Environmental Assessment (SEA) of the Severn Trent Water 2019 Water Resource Management Plan (WRMP). The WRMP will set out Severn Trent Water's long-term strategy for maintaining reliable and resilient water supplies to its customers.

The SEA scoping process is important in setting the context for the SEA and provides the opportunity for stakeholder engagement and feedback at an early stage. The Scoping Report describes the current and future environmental baseline within the geographical area that could be affected by the WRMP, and identifies key issues and objectives of plans and programmes that are potentially relevant to the WRMP. The environmental baseline, key issues and objectives inform the development of SEA objectives that form the basis of the subsequent assessment of the WRMP.

The Scoping Report also identifies the range of alternative options under consideration for the WRMP, provides an explanation of the assessment framework and explains how the findings from the SEA will actively inform the development of the WRMP.

Under Regulation 12 (5) of the Environmental Assessment of Plans and Programmes Regulations 2004 (the SEA Regulations)[1] (and the Environmental Assessment of Plans and Programmes (Wales) Regulations 2004[2]), when deciding upon the scope and level of detail of the information to be included in an Environmental Report, the authority responsible for the report is required to undertake consultation.

This Scoping Report fulfils this requirement and provides the statutory consultation bodies (the Environment Agency; Historic England; Natural England; Natural Resources Wales; Cadw), as well as other stakeholders, with an opportunity to provide views on the proposed scope and approach for the SEA of Severn Trent Water's WRMP.

1.2 Strategic Environmental Assessment

SEA became a statutory requirement following the adoption of Directive 2001/42/EC (the SEA Directive) on the assessment of effects of certain plans and programmes on the environment as transposed into national legislation by the SEA Regulations.

The objective of SEA, according to Article I 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 with a view to promoting sustainable development.'

The SEA Directive requires plans and programmes to undergo environmental assessment, and suggests that, among other factors, human health, population and water should be considered as criteria.

Article 2(b) of the SEA Directive defines 'environmental assessment' as:

- the preparation of an Environmental Report documenting the likely significant environmental effects of the plan, including reasonable alternatives;
- undertaking consultation on the draft plan and accompanying Environmental Report;

[1] The Environmental Assessment of Plans and Programmes Regulations 2004 (Statutory Instrument 2004 No. 1633) apply to any plan or programme which relates solely or in part to England.

[2] The Environmental Assessment of Plans and Programmes (Wales) Regulations 2004 (2004 No. 1656 (W. 170)) apply to any plans or programmes which relates solely or in part to Wales.

- taking into account of the Environmental Report and the results of the consultations in decision-making; and
- providing information when the plan is adopted and showing how the results of the SEA have been taken into account.

Article 2(c) of the SEA Directive defines an 'Environmental Report' as '*the part of the plan or programme documentation containing the information required in Article 5 and Annex I*'.

The UK Government has produced generic SEA guidance that sets out the stages of the SEA process - the "Practical Guide"[3]. Additionally, the Welsh Government has produced guidance to be read in conjunction with the Practical Guide[4]. These, along with specific guidance for undertaking SEA and Habitats Regulations Assessment (HRA) of WRMPs[5], is being used to inform the SEA of Severn Trent Water's WRMP. The 2016 Final Water Resources Planning Guideline[6] (WRPG) also provides guidance on the role of SEA within the water resources management planning process.

1.3 Requirement for SEA of Severn Trent Water's Water Resource Management Plan

As stated in the WRPG, water companies need to demonstrate that they have investigated whether a SEA is required. As responsible authorities under the SEA Regulations, water companies must themselves determine if its WRMP falls within the scope of the SEA Directive.

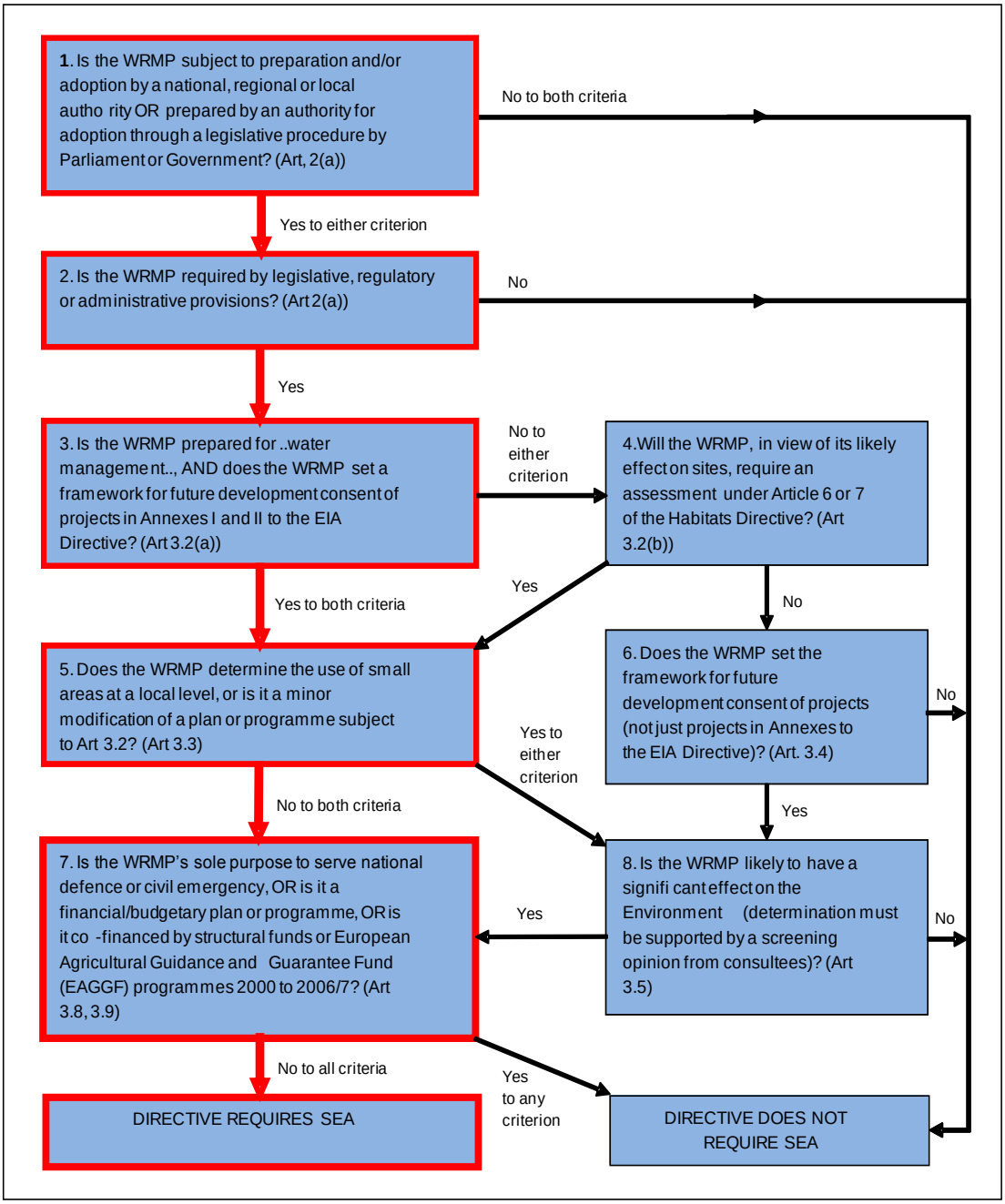
The ODPM Practical Guide, from which **Figure 1.1** is adapted, provides directions as to how the requirement for SEA should be determined. The boxes and arrows highlighted in red on Figure 1.1 describe the provisions and route through the flow chart applicable to Severn Trent Water's WRMP, and demonstrate that the WRMP falls within the scope of the SEA Directive. Notably, it is likely that the WRMP may include schemes that will require Environmental Impact Assessment (EIA) (see Box 3).

1.4 SEA and Water Resources Management Planning

In the context of water resource management planning, SEA can assist in the identification of the likely significant environmental effects (adverse and beneficial) of the options available to ensure long-term resilient water supplies to Severn Trent Water's customers. Knowledge of these effects can help to identify a preferred programme of options for each Water Resource Zone (WRZ)[7] that make up Severn Trent Water's supply area to ensure a balance is maintained between available water supplies and demand. The SEA informs the consideration of each option and the programme appraisal process, as well as development of the overall WRMP. The SEA can identify cumulative effects between different environmental and social aspects of a particular option, programme or plan, as well as between alternative options and programmes. SEA also helps identify potential cumulative effects of the WRMP with other plans, programmes and projects. It also facilitates consultation, and complements consideration of Habitats Regulations[8] and Water Framework Directive (WFD) implications for the WRMP (as explained further in Sections 1.6 and 1.7 below).

[3] Office of the Deputy Prime Minister (2005) A Practical Guide to the Strategic Environmental Assessment Directive.
[4] Welsh Government, Strategic Environmental Assessment in Wales
[5] UKWIR (2012) Strategic Environmental Assessment and Habitats Regulations Assessment - Guidance for Water Resources Management Plans and Drought Plans.
[6] Defra, Welsh Government, Ofwat, Environment Agency, Natural Resources Wales (2016) Final Water Resources Planning Guideline.
[7] UK Water Industry Research/Environment Agency define a WRZ as: 'The largest possible zone in which all resources, including external transfers, can be shared, and hence, the zone in which all customers will experience the same risk of supply failure from a resource shortfall.'
[8] The Conservation of Habitats and Species Regulations 2010 (as amended)

Figure 1.1 SEA Requirement of Severn Trent Water's Water Resources Management Plan



1.5 SEA Approach

SEA incorporates the following generic stages:

- Stage A: Setting the context, identifying objectives, problems and opportunities, and establishing the baseline (scoping)
- Stage B: Developing and refining options and assessing effects (impact assessment)
- Stage C: Preparing the Environmental Report (recording results)
- Stage D: Consulting on the Draft Plan and the Environmental Report (seeking consensus)
- Stage E: Monitoring the significant effects of the plan or programme on the environment (verification)

Table 1.1 is an extract from the ODPM Practical Guide that sets out the main stages of the SEA process and the purpose of each task within the process. This Scoping Report represents Stage A: Tasks A1 to A4 of the SEA process.

Table 1.1 SEA Stages and Tasks

SEA Stages and Tasks	Purpose
Stage A: Setting the context and objectives, establishing the baseline and deciding on the scope	
Task A1. Identifying other relevant plans, programmes and environmental protection objectives	To establish how the plan or programme is affected by outside factors to suggest ideas for how any constraints can be addressed, and to help identify SEA objectives.
Task A2. Collecting baseline information	To provide an evidence base for environmental problems, prediction of effects, and monitoring; to help in the development of SEA objectives.
Task A3. Identifying environmental problems	To help focus the SEA and streamline the subsequent stages, including baseline information analysis, setting of the SEA objectives, prediction of effects and monitoring.
Task A4. Developing SEA Objectives	To provide a means by which the environmental performance of the plan or programme and alternatives can be assessed.
Task A5. Consulting on the scope of the SEA	To ensure the SEA covers the likely significant environmental effects of the plan or programme.
Stage B: Developing and refining alternatives and assessing effects	
Task B1. Testing the plan or programme objectives against SEA objectives	To identify potential synergies or inconsistencies between the objectives of the plan or programme and the SEA objectives and help in developing alternatives.
Task B2. Developing strategic alternatives	To develop and refine strategic alternatives.
Task B3. Predicting the effects of the plan or programme, including alternatives	To predict the significant environmental effects of the plan or programme and its alternatives.
Task B4. Evaluating the effects of the plan or programme, including alternatives	To evaluate the predicted effects of the plan or programme and its alternatives and assist in the refinement of the plan or programme.
Task B5. Mitigating adverse effects	To ensure that adverse effects are identified and potential mitigation measures are considered.
Task B6. Proposing measures to monitor the environmental effects of plan or programme implementation	To detail the means by which the environmental performance of the plan or programme can be assessed.

SEA Stages and Tasks	Purpose
Stage C: Preparing the Environmental Report	
Task C1. Preparing the environmental report	To present the predicted environmental effects of the plan or programme, including alternatives, in a form suitable for public consultation and use by decision-makers.
Stage D: Consulting on the Draft Plan or programme and the Environmental Report	
Task D1. Consulting the public and consultation bodies on the draft plan or programme and the Environmental Report	To give the public and the consultation bodies an opportunity to express their opinions on the findings of the Environmental Report and to use it as a reference point in commenting on the plan or programme. To gather more information through the opinions and concerns of the public
Task D2. Assessing significant changes	To ensure that the environmental implications of any significant changes to the draft plan or programme at this stage are assessed and taken into account.
Task D3. Making decisions and providing information	To provide information on how the Environmental Report and consultees opinions were taken into account in deciding the final form of the plan or programme to be adopted.
Stage E: Monitoring the significant effects of the plan or programme on the environment	
Task E1. Developing aims and methods for monitoring	To track the environmental effects of the plan or programme to show whether they are as predicted; to help identify adverse effects.
Task E2. Responding to adverse effects	To prepare for appropriate responses where adverse effects are identified.

1.6 Habitats Regulations Assessment

As a competent authority, Severn Trent Water must also ensure that its WRMP meets the requirements of the Habitats Regulations prior to implementation. If the WRMP (i.e. one or more schemes within it) may cause a likely significant effect on one or more European sites[9], either alone or in-combination with other schemes, plans or projects, the WRMP must be subject to Appropriate Assessment. In accordance with the Habitats Regulations, Severn Trent Water is undertaking a Habitats Regulations Assessment (HRA) of its WRMP. The process has four potential stages as shown below: stages 3 and 4 are only invoked if an option were to be included in the preferred programme of the WRMP that may cause likely significant effects on a European site:

1. **Screening stage**, which identifies likely impacts, alone or in-combination with other projects or plans, and considers whether these impacts are likely to be significant. Screening will initially be carried out at the option level to assess whether any options will result in likely significant effects on a European site. Screening will also be carried out at the programme level and for the WRMP as a whole.

2. **Appropriate Assessment stage**. If screening identifies the potential for likely significant effects, an Appropriate Assessment of the impacts of an option, programme or the whole WRMP (alone and in combination with other plans and projects) will be required such that a conclusion can be made as to whether there will be impacts on site integrity, taking into account potential alternative solutions and mitigation measures.

[9] European sites are taken to include Special Areas of Conservation (SACs), candidate SACs, Special Protection Areas (SPAs), potential SPAs, Ramsar and proposed Ramsar sites, and sites identified as compensatory habitat for any of the aforementioned designations

3. **Assessment of alternative solutions**, where alternative solutions are identified and consideration of their impacts are given in comparison to those in the WRMP.

4. **Assessment where no alternatives exist** and adverse impacts remain, which provides an assessment of imperative reasons of overriding public interest and compensatory measures required.

Subject to the findings of the HRA screening process, and the selection of options for the WRMP, Appropriate Assessment of the WRMP may need to be undertaken and mitigation or alternatives developed. The scope and approach for Appropriate Assessment, if required, will be determined in consultation with Natural England (and Natural Resources Wales, where applicable).

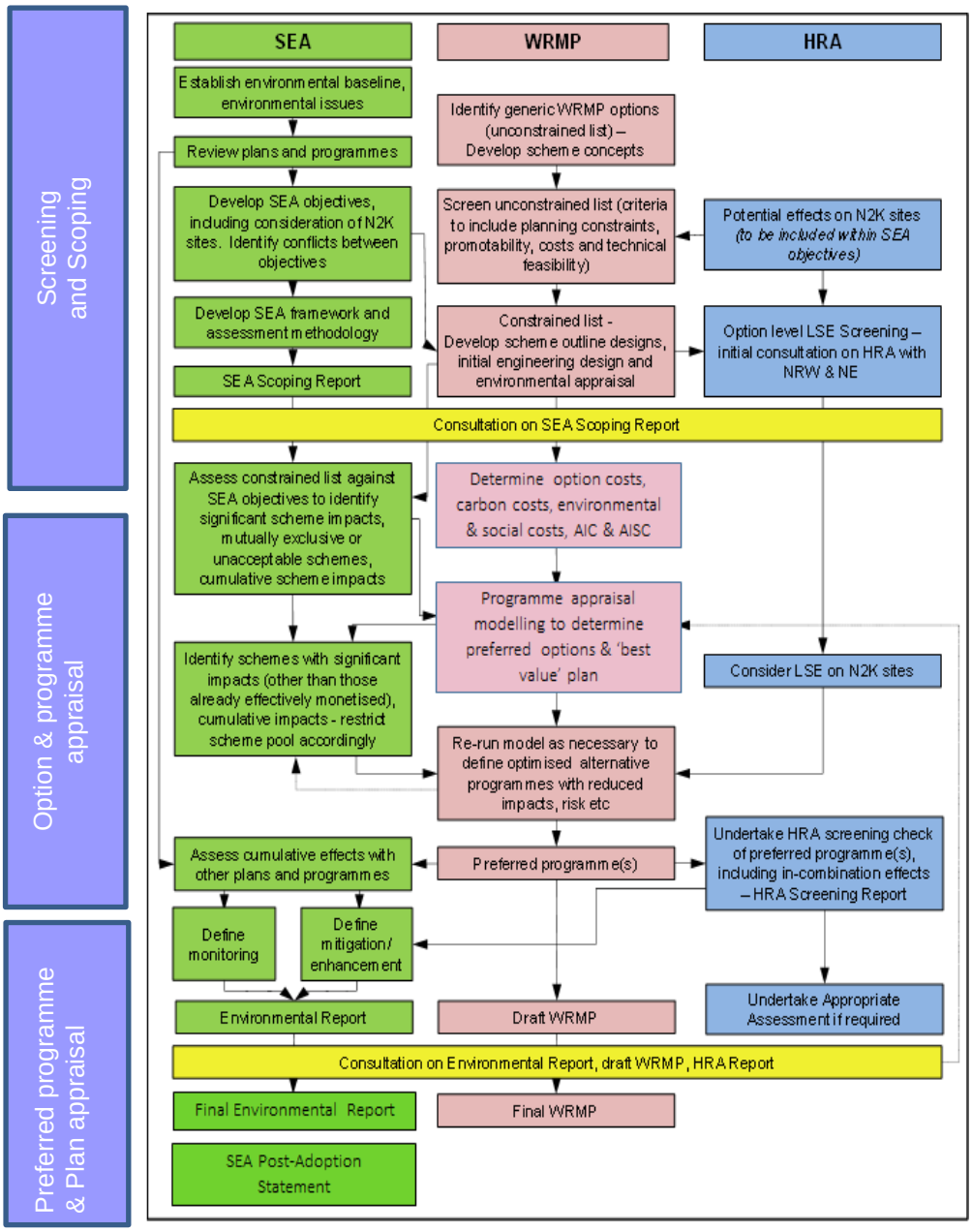
The findings from the HRA will inform the SEA at each stage of the assessment process, in particular the SEA topics of 'biodiversity, flora and fauna' and 'water'. **Figure 1.2** (adapted from the UKWIR SEA and HRA guidance) illustrates how the SEA and HRA processes are aligned with the WRMP development process.

1.7 Water Framework Directive Assessment

In line with the WRPG, water companies must also consider the impact of options, programmes and plans on relevant water bodies as defined under the WFD. In particular, companies must ensure that its proposed activities do not result in any deterioration between status classes of any water body (as assessed through a series of objective measures, including biological, chemical and morphological condition) or prevent the achievement of "Good Ecological Status".

The findings from the WFD will inform the SEA at each stage of the assessment process, in particular the 'water' topic.

Figure 1.2 SEA and HRA Aligned with the WRMP Process (adapted from the UKWIR Guidance)



1.8 SEA Consultation

According to the SEA Regulations, the statutory bodies to be consulted on the SEA (including the Scoping Report) in England and Wales are the Environment Agency, Natural England, Historic England, Natural Resources Wales and Cadw. Notification will also be provided to the Welsh Government that the SEA is being carried out as the WRMP. Severn Trent Water has also made this Scoping Report available to wider stakeholders and the public for comment.

There will be two key opportunities for SEA consultation: firstly at this Scoping Stage and secondly on publication of the Environmental Report that will accompany the draft WRMP.

Consultees are invited to express their views on the scope of the SEA as set out in this Scoping Report. A 5-week consultation period has been set in accordance with SEA Regulation 12(5). The Scoping Report has been placed on Severn Trent Water's website, and a hard copy is also available at Severn Trent Water's head office, so that the statutory bodies and stakeholders may provide comments on it within the consultation timescale (see below).

The Environmental Report will be produced according to the scope and approach agreed through consultation on the Scoping Report. The Environmental Report will document the assessed environmental effects of the alternative options and programmes considered for the WRMP. The statutory consultation bodies, as well as stakeholders and the public, will be invited to express their views on the Environmental Report and will have the opportunity to use it as a reference point in expressing their views on Severn Trent Water's draft WRMP. If the consultation yields responses that lead to significant changes to the draft WRMP and the SEA, the WRMP and Environmental Report would be amended accordingly and these would subsequently be consulted upon again prior to submission of the final WRMP to the Secretary of State.

On adoption of the final WRMP, following approval by the Secretary of State, Severn Trent Water will publish an SEA Statement setting out how the SEA and any views expressed by the consultation bodies or the public have influenced the WRMP. The SEA Statement will also set out the monitoring that will be required during implementation of the plan to assess any significant effects of the plan on the environment (Stage E of the SEA process).

Consultation Period

The consultation period for this Scoping Report will run from **Friday 20 January 2017 to Tuesday 28 February 2017 inclusive**.

You can submit your comments **by email** to futureconsultation@severntrent.co.uk with "WRMP SEA Scoping" in the subject header, **or by post** to the following address:

Future Consultations, Severn Trent Water, Severn Trent Centre, 2 St John's Street, Coventry. CV1 2LZ. Please include the reference "WRMP SEA Scoping" at the start of the letter.

Severn Trent Water will review all the comments received and publish a report setting out its response to the comments and any changes made to the approach to the SEA in response to the comments.

In particular, Severn Trent Water welcomes comments on the following questions:

Consultation Questions
Q1. Are the plans and programmes that have been reviewed appropriate (see Section 3)?
Q2. Are you aware of other plans or programmes that should be considered (see Section 3)? If so, please provide references.
Q3. Are you aware of any further baseline data or indicators that might provide useful information (see Section 4)? If so, please provide this information or a source for the data.
Q4. Are the environmental issues identified for Severn Trent Water's Water Resources Management Plan appropriate (see Section 4)?
Q5. Do the environmental objectives encompass all the necessary issues (see Section5)?
Q6. Do you have any views on the proposed approach for options and programme appraisal (see Section 6)?
Q7. Do you agree with the overall scope and approach proposed in the Scoping Report (see Section 6)?

1.9 Structure of the Scoping Report

This Scoping Report documents and is the output of Stage A of the SEA process described in Section 1.4. It has been prepared to facilitate consultation and agreement on the scope and approach of the SEA of Severn Trent Water's WRMP. The Scoping Report is structured as follows:

Section 1 (this section) – describes the requirement for, purpose and process of the SEA, and its context in relation to the WRMP.

Section 2 – Severn Trent Water Supply System and Water Resources Management Planning; describes how Severn Trent Water develops its plan to provide reliable and resilient water supplies to its customers over the long term planning horizon.

Section 3 – Policy Context; identifies key messages and environmental protection and social objectives from other relevant plans and programmes.

Section 4 – Environmental Baseline Review; draws out the key environmental and social issues that Severn Trent Water intends to consider in the SEA. Identifies the current and future baseline conditions within the area of potential influence of the WRMP.

Section 5 – Proposed SEA Objectives and Assessment Framework; develops the objectives to form the basis of the assessment, and introduces the assessment approach and framework to consider the environmental and social effects of the options, WRZ programmes and the WRMP.

Section 6 – Use of SEA in Options and Programme Appraisal; explains how the outputs of the SEA will be integrated into the development of the WRMP,

Section 7 – Next Steps; sets out the next stages and tasks in undertaking the SEA, and presents a proposed structure for the Environmental Report.

2 Severn Trent Water Supply System and Water Resources Management Planning

2.1 Introduction

This section provides an overview of the water resources management planning process, the Severn Trent Water supply system and Severn Trent Water's WRMP 2019. Section 2.2 and Figure 2.2 provide an overview of the Severn Trent Water supply system and Water Resource Zones (WRZs).

Water resources management planning is undertaken by all water companies in England and Wales in order to ensure reliable, resilient water supplies over the long-term planning horizon (at least 25 years). The process includes 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 seek to identify the preferred, 'best value' programme of demand management and water supply options to maintain a balance between reliable supply and demand in each WRZ and for their supply area as whole (the WRMP).

Water companies in England and Wales have a statutory requirement to prepare a WRMP every five years; the next WRMP must be submitted in draft in early 2018 for public consultation, with the final plan submitted for approval to the Secretary of State in 2019. The WRMP also informs the regulatory water company business planning 'Periodic Review' process through which the Water Services Regulation Authority (Ofwat) sets the price that water companies can charge its customers for water (and wastewater) services. The next Periodic Review will be in 2019 ('PR19').

Engagement with government, regulators, other licensed water suppliers and water companies, customers and a wide range of stakeholders is key to the WRMP process. Severn Trent Water's 2019 WRMP consultation programme has already commenced and includes stakeholder meetings where a wide range of stakeholders and the regulators meet to discuss Severn Trent Water's emerging plans for water resources management. Information is also provided on Severn Trent Water's website. Consultation will continue throughout the next few years as the 2019 WRMP continues to be developed. The draft WRMP will be published for formal public consultation in early 2018, accompanied by the SEA Environmental Report.

Following comments on the draft WRMP and SEA Environmental Report, a Statement of Response will be prepared by Severn Trent Water setting out how it intends to take account of the comments in finalising the WRMP for submission to the Secretary of State. Depending on the comments received, a revised draft WRMP may be published along with an updated SEA Environmental Report for further consultation prior to developing the final WRMP.

In developing its WRMP19, Severn Trent Water will examine the supply/demand balance for each WRZ and determine how any deficits between forecast demand and reliable water supplies should be addressed for the selected planning period.

The planning process will consider key issues which affect future water supply reliability and demand for water, such as:

- population and housing growth
- water consumption behaviour and how these may change in the future
- climate change implications for reliability of water supplies
- reductions to the availability of water supplies due to environmental impact of existing water source abstractions ('sustainability reductions')
- raw water quality deterioration due to land use and/or climate change

A wide range of alternative options will be considered by Severn Trent Water to address any forecast supply shortfalls, including:

- alternative water tariffs to encourage water efficiency (linked to Severn Trent Water's strategy to continue extending water metering to its household customers)
- promotion of water efficiency measures
- reducing water leakage from the water supply network or at customers' properties
- water transfers from other water companies or other owners of water sources
- water reuse
- changes to river or groundwater abstraction
- raising the level of existing reservoir
- increased transfer of water between WRZs

Each of these options is assessed to understand the costs, the benefits to the supply-demand balance, the effect on carbon emissions and the environmental and social effects (through the SEA process and associated HRA and WFD assessments). The options are subsequently compared through a comprehensive programme appraisal process to determine the 'best value' programme of measures to maintain a supply-demand balance over the planning period for each WRZ. Decisions on the best value programme will take account of a range of factors, such as the implications for water bills, the resilience to future risks and uncertainties (e.g. climate change), deliverability considerations and the environmental and social effects of the programme (adverse and beneficial, as informed by the SEA). The programmes developed for each WRZ collectively form the WRMP.

Section 6 of this Scoping Report explains in more detail how the SEA will actively inform the WRMP process at each key stage.

2.2 Severn Trent Water's supply system

Severn Trent Water is one of the largest water and wastewater companies in England and Wales, providing high quality water and wastewater services to over 3.7 million households and businesses over an area of 21,000km^2 in the Midlands and mid-Wales, stretching from the Bristol Channel to the Humber. Severn Trent Water provides water to 8 million people, supplying 1.8 billion litres per day to 4.3 million homes and businesses (see **Figure 2.1**). Water is supplied through nearly 47,000km of water mains fed from multiple sources including 28 impounding reservoirs and 181 groundwater sites. Groundwater sources, river derived sources and impounding reservoirs provide 35%, 35% and 30% respectively of the total volume of water put into supply. For water resource planning purposes, Severn Trent Water's supply area is divided into 15 independent WRZs reflecting the different characteristics of the supply areas and associated risks to meeting demand within the supply area. The 15 WRZs are shown in **Figure 2.2**. The following sections summarise the characteristics of each WRZ.

Strategic Grid

By far the largest WRZ, the Strategic Grid extends from the Peak District in the north, encompassing most of Derbyshire and Leicestershire. The WRZ then extends south-west through Warwickshire to Gloucester, and then north-west covering most of Worcestershire and some of Shropshire. It serves a population of 5 million (65% of the total population supplied by STW). The strategic grid is made up of 14 major water treatment works (WTW), five reservoir complexes, three major grid booster pumping stations and a number of strategic pipeline network connections and aqueducts.

Nottinghamshire

The Nottinghamshire WRZ is supported by inter-linked groundwater sources and can also receive transfers from the Strategic Grid. The zone is largely supplied from a sandstone aquifer, which is a large unit that responds slowly to abstraction and drought pressures. The WRZ serves just over 1 million people (13% of the total).

Newark

The Newark WRZ is supplied from local boreholes and imports from Nottinghamshire WRZ. The WRZ serves a population of 45,000 (0.6% of the total).

North Staffordshire

This WRZ extends from Tittesworth reservoir in the Peak District south-west towards Market Drayton. The WRZ is well connected and flexible. Water is routinely transferred from Tittesworth WTW to support the groundwater supplied areas to the south-west of the zone. Similarly, when Tittesworth output is reduced, demand in the North Staffordshire area can be met by increased output from the groundwater sources. This allows the conjunctive use of ground water and surface water resources. The WRZ serves a population of 520,000 (6.8% of the total).

Stafford

There are four borehole groups which supply the distribution reservoirs in the zone, allowing an even distribution of water throughout the zone. The zone has no defined connections to the surrounding WRZs under normal operation. It serves a population of 91,000 (1.2% of the total).

Whitchurch and Wem

This WRZ lies on the English side of England-Wales border and extends from Whitchurch southwards to Wem. The WRZ is supplied from local boreholes. There are no connections with surrounding WRZs under normal operation. The WRZ serves a population of 31,000 (0.4% of the total).

Kinsall

This WRZ lies to the west of the Whitchurch and Wem WRZ. The WRZ is supplied from local boreholes. There are no connections with surrounding WRZs under normal operation. The WRZ serves a population of 12,000 (0.2% of the total).

Mardy

This WRZ runs along the Welsh border encompassing Oswestry. The zone is supplied from a local borehole. There are no connections to the surrounding WRZs under normal operation. It serves a population of 8,200 (0.1% of the total).

Ruyton

The zone is supplied from a local borehole and a limited connection from the Shelton WRZ The WRZ serves a population of 12,300 (0.2%).

Shelton

This WRZ spans the England-Wales border extending from Gwynedd towards Wolverhampton. The zone is connected by a strategic link from Shelton to Telford that allows water resources to be effectively utilised throughout the zone from Shropshire to west Staffordshire.

Wolverhampton

The zone is supplied with water from South Staffordshire Water's Hampton Loade WTW, with support from a number of local groundwater sources. The WRZ serves a population of 232,000(3% of the total).

Llandinam and Llanwrin

This WRZ is supplied from local boreholes which are operated conjunctively. There are no connections with surrounding WRZs under normal operation. The WRZ serves a population of 42,000 (0.5% of the total).

Bishops Castle

The zone is supplied from local boreholes. There are no connections to the surrounding WRZs under normal operation. The WRZ serves a population of 8,000 (0.1% of the total).

Rutland

This zone on the eastern edge of the supply area receives all of its water from bulk supply transfers from Anglian Water. The WRZ serves a population of 32,000 (0.4% of the total).

Forest and Stroud

This zone is supplied with water from Mitcheldean WTW , which can be distributed throughout the zone, and local groundwater and spring sources. The WRZ serves a population of 130,000 (1.7% of the total).

Further details about the Severn Trent Water supply system are provided on the Severn Trent Water website (www.stwater.co.uk).

2.3 Severn Trent Water Resource Management Plan 2019

Severn Trent Water is beginning the process of developing its 2019 WRMP and it expects to publish and consult on the draft plan in early 2018. There are several future key challenges faced by Severn Trent Water in providing reliable and secure water supplies to its customers. These include increasing population in some areas, the potential effects of climate change, and possible "sustainability reductions" to the availability of water supplies from various existing water sources to help meet Water Framework Directive requirements to deliver good ecological status for waterbodies.

As a result of these various pressures, actions are likely to be required by Severn Trent Water to maintain sustainable and secure water supplies to customers. These actions could include measures to reduce the demand for water and/or develop additional water supply availability. A wide range of demand and supply measures will be considered initially, which will then be narrowed down to a smaller number of options for more detailed evaluation.

2.3.1 Area under consideration for the SEA

Development of the WRMP will involve a sequential process to determine the preferred programme of water supply and demand management schemes to maintain a supply-demand balance in each WRZ. The preferred programmes for each WRZ will together make up the WRMP. Section 6 explains in more detail how SEA will inform the process, and includes the feasible list of schemes currently under consideration for the WRMP. Some of the options to be considered may lie outside of the Severn Trent Water supply area: consequently, the spatial scope of the SEA is larger than the company's water supply area to cover potential locations for new sources of water that may be considered through the water resource planning process. The area under consideration for the SEA is shown in **Figure 2.1**.

2.3.2 Temporal scope of the SEA

The temporal scope of the WRMP covers a minimum planning period of 25 years. However, as the statutory process requires WRMPs to be produced every five years, the schemes and programmes for balancing supply and demand for water will be reviewed again and subject to SEA in 2023-24.

Figure 2.1 Severn Trent Water's Assessment Area

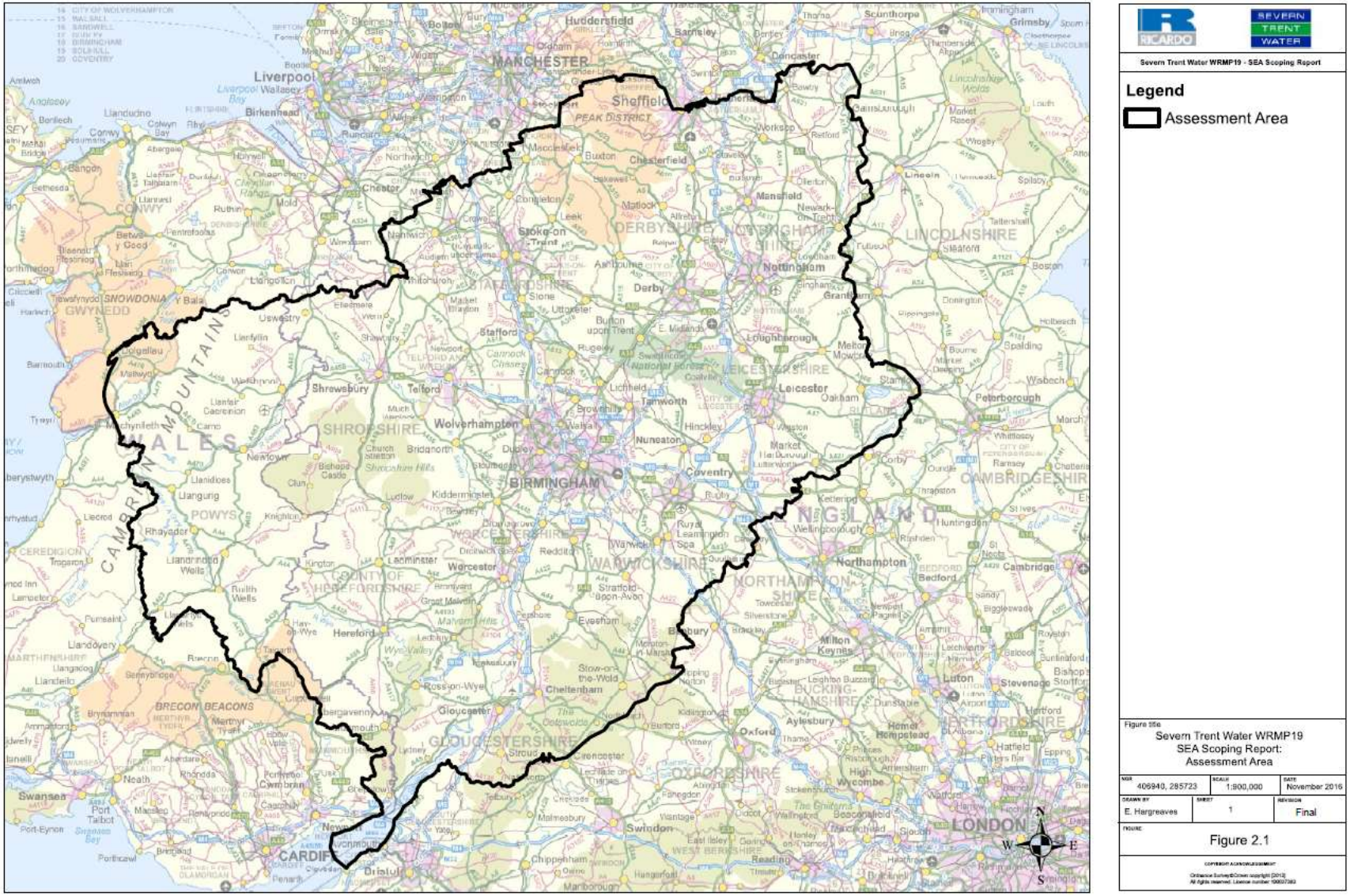
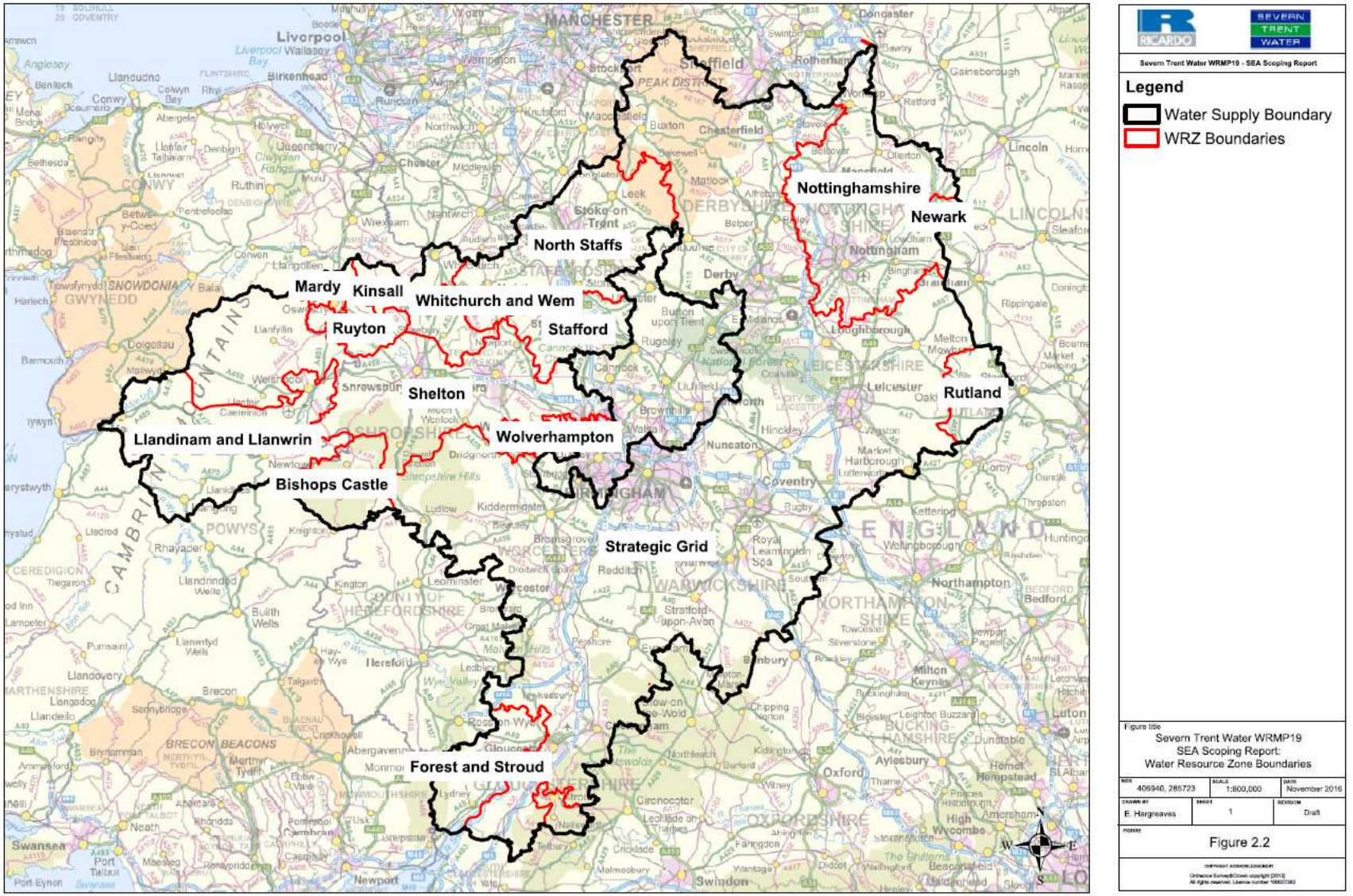


Figure 2.2


Nottinghamshire
Newark
North Staffs
Mardy
Kinsall
Whitchurch and Wem
Ruyton
Stafford
Shelton
Rutland
Llandinam and Llanwrin
Wolverhampton
Bishops Castle
Strategic Grid
Forest and Stroud
Severn Trent Water WRMP19 - SEA Scoping Report
Legend
Water Supply Boundary
WRZ Boundaries
Figure title
Severn Trent Water WRMP19
SEA Scoping Report:
Water Resource Zone Boundaries
406940, 285723
1:800,000
November 2016
E. Hargreaves
1
Draft
Figure 2.2

3 Policy context

3.1 Introduction

Annex 1 of the SEA Directive (Directive 2001/42/EC) requires the following specific information to be included within the Environmental Report:

- *'an outline of the…relationship with other plans and programmes'*
- *'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.'*

In accordance with the Directive, a review of relevant plans, policies and programmes is presented in Section 3.2. A summary of key messages is presented in Table 3.1.

3.2 Review of Plans, policies and Programmes

Identifying other relevant plans, policies and programmes, as well as environmental protection and social objectives, is one of the first steps in undertaking SEA, forming part of Stage A of the SEA process. The review identifies how Severn Trent Water's WRMP might be influenced by other plans, policies, programmes and other objectives which the WRMP should consider. This information helps to identify and inform the objectives for the SEA process.

Relevant plans, policies and programmes were identified from the wide range that has been produced at an international, national, regional and local level. The emphasis is on "*relevant*": plans and programmes that have no likely interaction with the WRMP (i.e. they are unlikely to influence the WRMP, or be influenced by it), have been excluded from the review. Important relevant plans, policies and programmes and strategic level plans that fall within the area under consideration identified in Section 2 have been considered, including relevant plans, policies and programmes in Wales as some key water sources used by Severn Trent Water are located within Wales.

The review and the key messages derived from it are documented in detail in Appendix A and summarised below in **Table 3.1**.

Table 3.1 Key Policy Messages derived from the Review of Plans and Programmes

SEA Topic	Key Messages	Plans, Policies and Programmes
Biodiversity, flora and fauna	Conservation and enhancement of the natural environment and of biodiversity, particularly internationally and nationally designated sites, whilst taking into account future climate change and ability to adapt. Promote a catchment-wide approach to water use to ensure better protection of biodiversity. To achieve favourable condition for priority habitats and species. Avoidance of activities likely to cause irreversible damage to natural heritage. Support well-functioning ecosystems, respect environmental limits and capacities, and maintain/enhance coherent ecological networks, including provision for fish passage and connectivity for migratory/mobile species. Strengthen the connections between people and nature and realise the value of biodiversity. Ensure maintenance and/or support provision of fish passage for migratory fish. Protection, conservation and	**International:** European Commission, Birds Directive (2009/147/EC) European Commission, Fresh Water Fish Directive (2006/44/EC) European Commission, 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, The Water Framework Directive (2000/60/EC) European Commission, Habitats Directive (1992/43/EEC) European Commission, The EU Biodiversity Strategy to 2020 European Commission Blueprint to Safeguard Europe's Water Resources Ramsar Convention The Convention on Wetlands of International Importance (1971) The Bonn Convention on the Conservation of Migratory Species of Wild Animals (1983) The Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979) United Nations (1992) Convention on Biological Diversity (CBD) **National:** Defra (2015) The government's response to the Natural Capital Committee's third State of Natural Capital report Countryside Council for Wales (CCW) (2003) Priority Habitats of Wales Countryside Council for Wales, English Nature, Environment Agency, Royal Society for the Protection of Birds (2004) Strategic Environmental Assessment and Biodiversity: Guidance for Practitioners Conservation of Habitats and Species Regulations 2010 Conservation of Habitats and Species Regulations 2010 (as amended by the Conservation of Habitats and Species (Amendment) Regulations 2011 and 2012) DCLG (2012) National Policy Planning Framework Defra (2011) Water for Life - Water White Paper Defra (2011) The Natural Choice: Securing the value of nature. The Natural Environment White Paper Defra (2011) Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services Defra (2010) Delivering a Healthy Natural Environment. Ecosystem Approach Action Plan (updated) Defra (2010) Making Space for Nature: A Review of England's Wildlife Sites and Ecological

	enhancement of natural capital. Ecosystem services from natural capital contributes to the economy and therefore should be protected and, where possible, enhanced. Avoidance of activities likely to cause the spread of Invasive Non-Native species (INNS). A need to protect the green infrastructure network.	Network Defra (2011) UK National Ecosystem Assessment and Defra (2014) UK National Ecosystems Assessment Follow on, Synthesis of Key Findings Defra (2015) The Great Britain Invasive Non-native Species Strategy Defra (2008), England Biodiversity Strategy –climate change adaptation principles Defra (2016) Single Departmental Plan 2015-2020 Environment Agency (undated) Hydroecology: Integration for modern regulation Environment Agency (undated) WFD River Basin Characterisation Project Environment Agency CAMS (various dates for relevant water catchments) Environment (Wales) Act 2016 Environment Agency (Wales) Salmon Action Plans Natural England's standing advice on protected species. Natural Environment and Rural Communities Act 2006 Salmon and Freshwater Fisheries Act 1975 The Countryside and Rights of Way (CRoW) Act 2000 Environmental Protection Act 1990 The Environmental Damage (Prevention and Remediation) (England) Regulations 2015 The Eels (England and Wales) Regulations 2009 (as amended) Wildlife and Countryside Act 1981 (as amended) The Environment Act 1995 The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 (as amended) Welsh Government (consultation document 2012), Sustaining a Living Wales: a green paper on a new approach to natural resource management Welsh Assembly Government (2009) Technical Advice Note 5. Nature Conservation and Planning Welsh Assembly Government (2006) Environment Strategy for Wales Well-being of Future Generations (Wales) Act 2015 **Regional/Local:** Environment Agency and Defra (2015) Humber River Basin District River Basin Management Plan Environment Agency and Defra (2015) Anglian River Basin District River Basin Management Plan Environment Agency, Defra, Natural Resources Wales and Welsh Government (2015) River Severn Basin District River Basin Management Plan Natural England (2014) Site Improvement Plans (SIPs) for Natura 2000 Sites Natural England National Character Area (NCA) Profiles Defra (2010) Eel Management Plans for the United Kingdom: Severn River Basin District

Population and human health	To ensure secure, safe, reliable, dependable, sustainable and affordable supplies of water are provided for all communities and all business sectors. Access to high quality open spaces and opportunities for sport and recreation can make an important contribution to the health and well-being of communities. To provide a clean, healthy environment that benefits both people and the economy. Water resources play an important role in supporting the health and recreational needs of local communities. Increase awareness of sustainability, the true value of water and its efficient use. Promotion of well-being and healthy communities and protection from risks to these. Promotion of a sustainable economy supported by universal access to essential utility and infrastructure services. Protection and improvement of drinking water quality.	**International:** European Commission, Drinking Water Directive (1998/83/EC) (as amended) European Commission Blueprint to Safeguard Europe's Water Resources European Commission, The 7th Environmental Action Programme (EAP) Environment Action Programme to 2020 'Living well, within the limits of our planet' (1386/2013/EU) HM Treasury Infrastructure UK (2014) National Infrastructure Plan The Natural Environment and Rural Communities (NERC) Act (2006) The Environment Noise Directive (Directive 2002/49/EC) United Nations Economic Commission for Europe (1998) Aarhus Convention - Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters **National:** The Countryside and Rights of Way (CRoW) Act 2000 Defra (2011) Water for Life -Water White Paper Defra (2011) The Natural Choice: securing the value of nature. The Natural Environment White Paper Defra (2005) Securing the Future; Delivering UK Sustainable Development Strategy Defra, Environment Agency, Natural England, Forestry Commission England (2016) Creating a great place for living DCLG (2012) National Policy Planning Framework Environment Agency (2015) Creating a Better Place: Environment Agency Corporate Strategy 2014-2016 Environment Agency (2014) Corporate Plan 2014 – 2016 HM Treasury (2015) Fixing the Foundations: Creating a More Prosperous Nation HM Treasury Infrastructure UK (2014) National Infrastructure Plan The Natural Environment and Rural Communities (NERC) Act (2006) Welsh Assembly Government (2008) Wales Spatial Plan Welsh Assembly Government (2009) One Wales: One Planet – a new sustainable development scheme for Wales Welsh Government (2010), Technical Advice Note 6: Planning for Sustainable Rural Communities Welsh Assembly Government (1997), Technical Advice Note 13: Tourism Welsh Assembly Government (2009), Technical Advice Note 16: Sport, Recreation and Open Space Welsh Government Planning Policy Wales (2016) Edition 8 Natural Resources Wales (2015) Outdoor Recreation and Access Enabling Plan Environment (Wales) Act 2016

		Well-being and Future Generations (Wales) Act 2015 **Regional/Local:** Birmingham City Council (2010) Core Strategy 2026 Consultation Draft Black Country (2012) Core Strategy Adopted February 2011 Borough of Redditch (2011) Revised Preferred Draft Core Strategy Bromsgrove District Council (2011) Draft Core Strategy 2011 Chesterfield Borough (2012) Draft Core Strategy February 2012 Environment Agency (2011) Enjoying Water - Strategic Priorities for Water Harborough District (2011) Core Strategy Adopted Leicester City Council (2010) Leicester City Local Development Framework - Core Strategy Local Planning Authorities (various) Water Cycle Studies for housing growth points Public Rights of Way Improvement Plans (ROWIPs) Strategic Direction Statement (2014) for Severn Trent Water

Material assets and resource use	Promote sustainable production and consumption whilst seeking to reduce the amount of waste generated by using materials, energy and water more efficiently. Consider issues of water demand, water supply and water quality in the natural environment and ensure a sustainable use of water resources. Government expects water companies to continue reducing overall demand for water. Contribute to a resource efficient, green and competitive low carbon economy. Maintain a resilient, reliable public water supply and ensure there is enough water for human uses, as well as providing an improved water environment. Minimise the production of waste, maximise resource benefits from waste and ensure waste management is in line with the 'waste hierarchy': eliminate waste sent to landfill. Promote the sustainable management of natural resources.	**International:** United Nations (2002) Commitments arising from the World Summit on Sustainable Development, Johannesburg European Commission (2008) Revised Waste Directive (2008/98/EC) **National:** Defra (2011) Government Review of Waste Policy in England 2011 Defra (2008) Future Water: the Government's water strategy for England DCLG (2012) National Policy Planning Framework Defra (2015) The government's response to the Natural Capital Committee's third State of Natural Capital report HM Treasury (2015) Fixing the Foundations: creating a more prosperous nation. Environment Agency (2009) Water Resources Strategy for England and Wales Environment Agency (2010) Water Resources Action Plan for England and Wales Environment Agency (1999) Restoring Sustainable Abstraction Programme Environment Act 1995 Environmental Protection Act 1990 HM Treasury (2015) Fixing the Foundations: creating a more prosperous nation. HM Treasury Infrastructure UK (2014) National Infrastructure Plan Waste (England and Wales) Regulations 2011 Landfill Allowances Scheme (Wales) Regulations 2004 Environment (Wales) Act 2016 Well-being and Future Generations (Wales) Act 2015 Welsh Assembly Government (2006) Environment Strategy for Wales Welsh Government, (2014) A Water Strategy for Wales Consultation Document **Regional/Local:** Severn Trent Water WRMP 2014 South Staffordshire Water WRMP 2014 Harborough District (2011) Core Strategy Adopted Leicester City Council (2010) Leicester City Local Development Framework - Core Strategy Birmingham City Council (2010) Core Strategy 2026 Consultation Draft Black Country (2012) Core Strategy Adopted February 2011

Water	Promote sustainable water resource management, including a reduction in water consumption, to meet society's needs and offer opportunities for green growth whilst protecting and enhancing the natural environment. Maintain and improve water quality (surface waters, groundwater and bathing waters). Expand the scope of water quality protection measures to all waters, surface waters and groundwater. Improve the quality of the water environment and the ecology which it supports, and continue to provide high levels of drinking water quality. Ensure appropriate management of abstractions and protect flow and level variability across the full range of regimes from low to high conditions. Prevent deterioration of waterbody status and contribute to achievement of WFD Good Status. Develop a resilient and flexible water management approach to cope with changing climate, population and economic conditions.	**International:** European Commission Floods Directive (2007/60/EC) European Commission The Water Framework Directive (2000/60/EC) European Commission Drinking Water Directive (1998/83/EC) (amended 2015) European Commission Environmental Liability Directive (2004/35/EC) Directive 2006/118EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration European Commission Revised Bathing Water Quality Directive (76/160/EEC) European Commission Urban Waste Water Treatment Directive (91/271/EEC) European Commission Nitrates Directive (91/676/EEC) **National:** DCLG (2012) National Policy Planning Framework Defra (2005) Making Space for Water Defra (2016)The UK Climate Change Risk Assessment 2017 Evidence Report Defra (2011) Water for Life - Water White Paper Defra (2011) The Natural Choice: Securing the value of nature. The Natural Environment White Paper Defra (2008) Future Water: the Government's water strategy for England Defra and Welsh Government (2014) River Basin Planning Guidance Defra (2016) Guiding principles for water resources planning for water companies operating wholly or mainly in England Environment (Wales) Act 2016 Well-being and Future Generations (Wales) Act 2015 Environment Agency (1999) Restoring Sustainable Abstraction Programme Environment Agency (2011) National Flood and Coastal Risk Management Strategy for England Environment Agency (2010) Water Resources Action Plan for England and Wales Environment Agency (2009) Water Resources Strategy for England and Wales Environment Agency (2013) Managing Water Abstraction Environment Agency (2013) Climate change approaches in water resources planning – overview of new methods Environment Agency (2014) Corporate Plan 2014 – 2016 Environment Agency (2015) Creating a Better Place: Environment Agency Corporate Strategy 2014-2016 Environment Agency and other lead authorities Shoreline Management Plans Flood and Water Management Act (2010)

	Balance the abstraction of water for supply with the other functions and services the water environment performs or provides. Steer new development to areas with the lowest probability of flooding and manage any residual flood risk, taking account of the impacts of climate change. Promote measures to enable and sustain long-term improvement in water efficiency. Ensure a sustainable balance between the supply and demand for water. Reduce flood risk to people, residential and non-residential properties, community facilities and key transport links, as well as designated nature conservation sites and heritage assets and landscapes of value. Reduce risk of flooding from reservoirs. Support achievement of River Basin Management Plan objectives.	The Water Act (2003) The Water Environment (WFD) (England and Wales) Regulations 2003 UKTAG WFD Guidance Documents (various dates) Water Industry Act 1991 (as amended) Water Resources Act (1991) (as amended) Welsh Government (2011) Strategic Policy Position Statement on Water 2011 Welsh Government (2014) National Strategy for Flood and Coastal Erosion Risk Management Welsh Government (2012), Sustaining a Living Wales: a green paper on a new approach to natural resource management Welsh Government (2012), State of the Environment Report – Wales Welsh Government, (2015) A Water Strategy for Wales Welsh Assembly Government (2004), Technical Advice Note 15: Development and Flood Risk Welsh Government (2013) Wales Marine and Fisheries Strategic Action Plan Welsh Government Planning Policy Wales (2016) Edition 8 **Regional/Local:** Environment Agency (2011) Water Resources Regional Action Plan for Midlands Region Environment Agency, Defra, Natural Resources Wales and Welsh Government (2015) River Severn Basin District River Basin Management Plan Environment Agency and Defra (2015) Humber River Basin District River Basin Management Plan Environment Agency (2016) Humber River Basin District Flood Risk Management Plan 2015-2021 Environment Agency (2016) Severn River Basin District, Flood Risk Management Plan 2015-2021 Environment Agency and Defra (2015) Anglian River Basin District, River Basin Management Plan Environment Agency CAMS (various dates for relevant catchments) Environment Agency Catchment Flood Management Plans (various) Water companies WRMPs 2014 (various) Water companies 2014 Business Plan submissions to Ofwat (various) Water companies Drought Plans (various)

Soil, geology and land use	Protect and enhance the quality and diversity of geology (including geological Sites of Special Scientific Interest) and soils including geomorphology and geomorphological processes. Ensure that soils will be protected and managed to optimise the varied ecosystem service functions that soils perform for society (e.g. supporting agriculture and forestry, protecting cultural heritage, carbon sequestration, supporting biodiversity, as a platform for construction), in keeping with the principles of sustainable development. Promote catchment-wide approach to land management by relevant stakeholders, in order to benefit natural resources, reduce pollution and develop resilience to climate change. Promote mixed use developments, and encourage multiple benefits from the use of land in urban and rural areas, recognising that some open land can perform many functions. 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. Minimise coastal erosion. Conservation and enhancement of geological SSSIs.	**International:** Council of Europe (2003) European Soils Charter European Commission (2006) Thematic Strategy for Soil Protection **National:** The Countryside and Rights of Way (CRoW) Act 2000 Defra (2009) Safeguarding our Soils – A Strategy for England Environment Agency (2007) Soil a precious resource: Strategy for protecting, managing and restoring soil DCLG (2012) National Policy Planning Framework Defra (2004) Rural Strategy 2004 Defra (2006) Sustainable Farming and Food Strategy: Forward Look HMSO (1990) Environmental Protection Act Environment (Wales) Act 2016 Well-being and Future Generations (Wales) Act 2015 Welsh Assembly Government (2006) Environment Strategy for Wales Welsh Assembly Government (2014) National Strategy for Flood and Coastal Erosion Risk Management Welsh Government (2014) Glastir: Agri-environment scheme funded under the Rural Development Plan Welsh Government (2016) Planning Policy Wales (8th Edition) Wildlife and Countryside Act 1981 (as amended) **Regional/local** Natural England - National Character Area (NCA) profiles Environment Agency, Defra, Natural Resources Wales and Welsh Government (2015) River Severn Basin District River Basin Management Plan Environment Agency and Defra (2015) Humber River Basin District River Basin Management Plan Environment Agency and Defra (2015) Anglian River Basin District, River Basin Management Plan

Air and climate	Reduce greenhouse gas emissions. Targets include: reduce the UK's greenhouse gas emissions by at least 80% (relative to 1990 levels) by 2050. In Wales, target is to achieve an 80% reduction in emissions. Reduce the effects of air pollution on ecosystems. Improve overall air quality. Sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Minimise energy consumption, support the use of sustainable/renewable energy and improve resilience to climate change. Build in adaption to climate change to future planning and consider the level of urgency of associated risks of climate change impacts accordingly. Need for adaptive measures to respond to likely climate change impacts on water supply and demand.	**International:** United Nations (1992) Framework Convention on Climate Change (UNFCCC) – as updated, including The Paris Agreement (2016), The Cancun Agreement (2011) and Kyoto Agreement (1997) European Commission (2008) Ambient Air Quality Directive (2008/50/EC) European Commission (2009) Promotion of the use of energy from renewable sources Directive (2009/28/EC) European Commission (2005) Thematic Strategy on Air Pollution **National:** Defra (2013) The National Adaptation Programme: Making the country resilient to a changing climate DCLG (2012) National Policy Planning Framework Defra (2016) The UK Climate Change Risk Assessment 2017 Evidence Report Department for Energy and Climate Change (2009) UK Renewable Energy Strategy Department of energy and climate change, Planning our electric future: a White Paper for secure, affordable and low carbon electricity (2011) Defra (2008), England Biodiversity Strategy –climate change adaptation principles Defra (2007) The Air Quality Strategy for England, Scotland and Wales DECC (2007) Energy White Paper: Meeting the Energy Challenge Environment (Wales) Act 2016 Environment Agency (2014) Corporate Plan 2014 – 2016 Environment Agency (2015) Creating a Better Place: Environment Agency Corporate Strategy 2014-2016 The Climate Change Act 2008 The Energy Act 2013 UKCIP (2009) UK Climate Projections UKCP09 (2009) Welsh Assembly Government (2010) Climate Change Strategy for Wales Welsh Assembly Government (2006) Environment Strategy for Wales Welsh Assembly Government (2010), Low Carbon Revolution – The Welsh Assembly Government Energy Policy Statement Welsh Government (2016) Planning Policy Wales (8th Edition) **Regional/Local:** Severn Trent Water (2014) WRMP 2014

SEA Topic	Key Messages	Plans, Policies and Programmes
		Severn Trent Water (2014) Business Plan 2014 submission to Ofwat Black Country (2012) Core Strategy Adopted February 2011 Birmingham City Council (2012) Climate Change Adaptation Action Plan - Preparing Birmingham for Climate Change Impacts Birmingham City Council (2010) Core Strategy 2026 Consultation Draft Defra (various dates) Climate Adaptation Reports for relevant water companies Harborough District (2011) Core Strategy Adopted Leicester City Council (2010) Leicester City Local Development Framework - Core Strategy

Archaeology and cultural heritage	Built development in the vicinity of historic buildings and Scheduled Monuments could have implications for the setting and/or built fabric and cause damage to any archaeological deposits present on the site. Ensure active management of the Region's environmental and cultural assets. Ensure effects resulting from changes to water level (surface or sub-surface) on all historical and cultural assets are avoided. Consider effects on important wetland areas with potential for paleo-environmental deposits. Promote the conservation and enhancement of the historic environment, including the promotion of heritage and landscape as central to the culture of the region and conserve and enhance distinctive characteristics of landscape and settlements. Conserve and enhance the historic environment, heritage assets and their settings. Protect, enhance and manage the character and appearance of historic and cultural assets and their settings including maintaining and strengthening local distinctiveness and sense of place.	**International:** The Convention for the Protection of the Architectural Heritage Of Europe (Granada Convention) The European Convention on the Protection of Archaeological Heritage (Valletta Convention) **National:** Ancient Monuments and Archaeological Areas Act 1979 Cadw (2013) Historic Environment Strategy for Wales Cadw, CCW and ICOMOS (UK) (International Council on Monuments and Sites) (2001) - Register of Landscapes of Historic Importance DCLG (2012) National Policy Planning Framework Department for Culture, Media and Sport (2001) The Historic Environment – A Force for the Future (2001) English Heritage (2008), Climate Change and the Historic Environment English Heritage (2010), Heritage at Risk Historic England (2013) Strategic Environmental Assessment, Sustainability Appraisal and the Historic Environment Historic England (2015) The Setting of Heritage Assets, Historic Environment Good Practice Advice in Planning Historic Environment (Wales) Act 2016 Planning (Listed Buildings and Conservation Areas) Act 1990 Welsh Assembly Government (consultation document 2012), Sustaining a Living Wales: a green paper on a new approach to natural resource management Well-being of Future Generations (Wales) Act 2015 Welsh Government (2016) Planning Policy Wales (8th Edition)

SEA Topic	Key Messages	Plans, Policies and Programmes
Landscape and visual amenity	Protection and enhancement of landscape (including designated landscapes, landscape character, distinctiveness and the countryside). Take account of the different roles and character of different areas, promoting the vitality of main urban areas, protecting the Green Belts around them, recognising the intrinsic character and beauty of the countryside and supporting thriving rural communities within it. Enhance the value of the countryside by protecting the natural environment for this and future generations. Improve access to valued areas of landscape character in sustainable ways to enhance its enjoyment and value by visitors and stakeholders.	**International:** Council of Europe (2006) European Landscape Convention **National:** Cadw, CCW and ICOMOS (UK) (International Council on Monuments and Sites) (2001) - Register of Landscapes of Historic Importance DCLG (2012) National Policy Planning Framework Defra (2011) The Natural Choice: Securing the value of nature. The Natural Environment White Paper Defra (2010) Making Space for Nature: A Review of England's Wildlife Sites and Ecological Network The Countryside and Rights of Way (CRoW) Act (2000) Wildlife and Countryside Act 1981 (as amended) Welsh Assembly Government (2010) Natural Environment Framework "A Living Wales: a new framework for our environment, our countryside and our seas" Welsh Assembly Government (2009) One Wales: One Planet – a new sustainable development scheme for Wales Welsh Government (2016) Planning Policy Wales (8th Edition) **Regional/Local:** Cannock Chase Area of Outstanding Natural Beauty Management Plan 2014-2019 Cotswolds AONB Management Plan 2013-2018 Malvern Hills Area of Outstanding Natural Beauty Management Plan 2014-2019 Natural England - National Character Area (NCA) profiles Peak District National Park Authority (2011) Local Development Framework: Core Strategy Shropshire Hills Area of Outstanding Natural Beauty (2014) Management Plan 2014 to 2019 Snowdonia (Eryri) National Park (2011) Eryri Local Development Plan Wye Valley AONB (2010) Management Plan 2009 - 2014

4 Environmental Baseline Review

4.1 Introduction

Annex 1 of the SEA Directive requires the following specific baseline information to be included within the Environmental Report to identify the environmental characteristics of areas likely to be significantly affected by the WRMP:

- 'the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme'
- 'the environmental characteristics of areas likely to be significantly affected'
- 'any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC (the 'Birds Directive') and 92/43/EEC (the 'Habitats Directive').'

An essential part of the SEA process is to identify the current baseline conditions and their likely evolution **in the absence of the 2019 WRMP**. It is only with knowledge of baseline conditions that potential impacts of the 2019 WRMP can be identified, monitored, and if necessary mitigated. However, **it is important to note that the future baseline is not a 'do nothing' option with respect to water resources planning**. There will be elements of Severn Trent Water's current WRMP (published in 2014) that will continue in the absence of the new 2019 plan (e.g. actions to further increase water metering of households and continuing measures to reduce water leakage and promote water efficiency to implement Severn Trent Water and/or Government policy). These measures will act to alter the future baseline.

In this Section, the best available projections for environmental and social characteristics have been considered and summarised, but there is significant uncertainty which increases with time. A scenario approach is therefore proposed as part of the assessment process to test the sensitivity of the WRMP against the central assessment of environmental and social effects based on known or likely changes. In this way, the resilience of options, programmes and the overall plan can be assessed and used to inform decision-making as well as future recommendations for monitoring of the effects of the plan to provide data for subsequent WRMPs and associated SEAs. Further details are set out in Section 6.

Baseline data have been drawn from a variety of sources, including a number of the plans, policies and programmes reviewed and summarised earlier in **Table 3.1**. The sections below also summarise the likely future trends in the environmental and social issues considered (where information is available to do so). The key issues arising from the review of baseline conditions are summarised at the end of each sub-section.

4.1.1 Limitations of the data and assumptions made

The area under consideration for this SEA is substantial presenting some challenges around extrapolating information from data collated at differing spatial resolutions. Relevant spatial data have been obtained for each of the SEA topics and presented as mapped information as much as possible to summarise the extensive datasets involved.

In some instances, reporting cycles mean that the available information is dated (as indicated for each dataset) but if information is updated before the Environmental Report is produced, the more recent data will be used in the assessment.

The principal limitations surround the future social and environmental baseline where there is substantial differences in the availability and temporal resolution of robust projections across the various SEA topic areas. As discussed above, a scenario based approach will therefore be adopted to test central forecasts (and 'best view' assumptions where forecasts are lacking or do not extend sufficiently far ahead) as part of the assessment process.

4.1.2 Overview

The majority of options under consideration for the WRMP are principally likely to affect people, society and the environment (both natural and built) within the area under consideration (**Figure 2.2**). There may be potential options to transfer water from more distant locations, but details of such options are currently unknown. If such options are developed for consideration by Severn Trent Water in developing its WRMP, details of the baseline environment from which water would be sourced for such transfers will be included in the SEA Environmental Report.

Each subsequent SEA sub-section sets out a summary of the baseline data and future baseline for the SEA assessment area (hereafter referred to as the "assessment area").

4.2 Biodiversity, fauna and flora

4.2.1 Baseline

Biodiversity comprises the variety of plants (flora) and animals (fauna) in an area, and their associated habitats. The importance of preserving biodiversity is recognised from an international to a local level. Biodiversity has importance in its own right, and has value in terms of quality of life and amenity[10].

The assessment area includes a variety of sites that are designated at a European, national or local level as important for biodiversity, flora and fauna (see **Figure 4.1**), including:

- 5 Ramsar[11] Sites
- 7 Special Protection Areas (SPA) [12]
- 46 Special Areas of Conservation (SAC) [13]
- Some 600 Sites of Special Scientific Interest (SSSI) [14]
- 41 National Nature Reserves (NNR) [15]
- Some 300 Local Nature Reserves (LNR)[16].

There are also several other designated sites (including the Dee Estuary, Mersey Estuary and Humber Estuary European Marine Sites) that are hydrologically connected to the assessment area.

Table 4.1 list all the European designated sites within the SEA assessment area. Information on all international, nation and local designated sites is held on GIS layers (and summarised in Figure 4.1) and will be used to inform the SEA of the WRMP.

Ancient woodlands in England and Wales are important habitats that should be protected. An ancient woodland is any wooded area that has 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 often also have cultural importance. Areas of ancient woodland are shown on **Figure 4.2**. The total ancient woodland area covers 3.2% of the SEA area under consideration (920 km^2).

[10] Well-being of Future Generations (Wales) Act 2015
[11] Ramsar sites are wetlands of international importance designated under the Ramsar Convention.
[12] Special Protection Areas (SPAs) are strictly protected sites classified in accordance with Article 4 of the EC Directive on the conservation of wild birds (79/409/EEC), also known as the Birds Directive, which came into force in April 1979. They are classified for rare and vulnerable birds, listed in Annex I to the Birds Directive, and for regularly occurring migratory species. www.jncc.org.uk
[13] Special Areas of Conservation (SACs) are strictly protected sites designated under the EC Habitats Directive. Article 3 of the Habitats Directive requires the establishment of a European network of important high-quality conservation sites that will make a significant contribution to conserving the 189 habitat types and 788 species identified in Annexes I and II of the Directive (as amended). www.jncc.org.uk
[14] Natural England now has responsibility for identifying and protecting the SSSIs in England under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000).
[15] NNRs are protected under Sections 16 to 29 of the National Parks and Access to the Countryside Act, 1949 and the Wildlife and Countryside Act, 1981.
[16] LNRs – places with wildlife or geological features that are of special interest locally.

Natural England has defined a series of 160 National Character Areas (NCAs) as a means to conserve nature in England[17]. These are areas of countryside identified by the unique combination of physical attributes, wildlife, land use and culture. Key messages regarding habitat type are presented in **Table 4.15** and National Character Areas (NCAs) that cover the assessment area are shown in **Figure 4.9** together with Areas of Outstanding Natural Beauty (AONB) (under the Landscape and Visual Amenity topic).

The WFD ecological status classification considers the condition of biological quality elements (e.g. aquatic invertebrates, plants and fish), the morphology of the habitat available in each water body (e.g. a defined stretch of river), and concentrations of supporting physico-chemical elements (e.g. oxygen or ammonia and concentrations of specific pollutants). See the 'Water' topic for details on water quality, and **Table 4.4** for the ecological condition of surface water bodies.

Water abstraction and associated infrastructure can sometimes result in adverse effects on water-related sites. Impacts on biodiversity may include the drying out of wetland habitats, lower water levels and slower flows in watercourse, deterioration in water quality, change in water temperature, or the transfer or proliferation of invasive species. **Table 4.1** presents details of water dependent/related internationally designated sites within the assessment area, including SPAs, SACs and Ramsar sites indicating the relevant CAMS area and WRZ each site is found within.

The relevant WFD River Basin Management Plans (RBMPs) for the assessment area identify pollution from rural areas (including sediment bound phosphorous and nitrates) as one of the major issues affecting the ecology of rivers. Other major pressures affecting the rivers in the assessment area include treated effluent discharges from wastewater treatment works, untreated discharges from intermittent sewer overflows and physical modifications to natural waterbodies[18].

Table 4.1 Designated Sites within/potentially connected to the Severn Trent SEA Assessment Area

Site Name and Designation Type	Water Resource Zone
Bees Nest & Green Clay Pits SAC, SSSI	
Peak District Dales SAC	Strategic Grid
South Pennines Moors Phase 2 SPA	
Peak District Moors (South Pennines Moors Phase1) SPA, SAC	
River Mease SAC	Strategic Grid, Wolverhampton
Ensor's Pool SAC	
Fens Pool SAC	Strategic Grid, Wolverhampton
Lypard Grange Ponds SAC	
Cotswold Beechwoods SAC	Strategic Grid, Forest and Stroud
The Stipperstones and the Hollies SAC	
Clarepool Moss SAC	
Fenn's, Whixall and Bettisfield SAC	
Wem and Cadney Mosses SAC	North Staffs
Brown Moss SAC	
Midland Meres and Mosses Phase 2 Ramsar Site	
No SPAs	

[17] Natural England (2014) Natural Character Area Profiles. https://www.gov.uk/government/publications/national-character-area-profiles-data-for-local-decision-making/national-character-area-profiles

[18] Natural Resource Wales (2016) The State of Natural Resources Report (SoNaRR): Assessment of the Sustainable Management of Natural Resources. Technical Report. Chapter 3. Summary of extent, condition and trends of natural resources and ecosystems in Wales - https://naturalresources.wales/media/679693/chapter-3-state-and-trends-final-for-publication.pdf

Montgomery Canal SAC	
Granllyn SAC	Llandinam and Llanwrin, Shelton, Strategic Grid, North Staffs, Ruyton, Wolverhampton
Midland Meres and Mosses Phase 2 Ramsar Site	
Fenn's, Whixall, Bettisfield, Wem SAC	
Cadney Mosses SAC	
Breedon Hill SAC	Strategic Grid
Dixton Wood SAC	
Severn Estuary Ramsar Site, SPA, SAC	Llandinam and Llanwrin, Shelton, Forest and Stroud
Walmore Common Ramsar Site, SPA	
Midland Meres and Mosses Phase 1 Ramsar / West Midlands Mosses SAC	
Chartley Moss SAC and Ramsar	
Cannock Chase SAC	North Staffs, Stafford, Shelton
Pasturefields Saltmarsh SAC	
Motley Meadows SAC	
Cannock Extension Canal SAC	
Cope Mere Ramsar	
Peak District Dales SAC	North Staffs, Strategic Grid
South Pennines Moors Phase 2 SPA	
Parts of the River Clun, which is a tributary of the Teme, are classed as a SAC due to the biodiversity of habitats and species in the river	Bishop Castle, Strategic Grid
River Wye SAC	
River Wye and River Lugg SSSIs	
Drostre Bank SAC	
Elenydd SAC	
Llangorse Lake SAC	
Mynydd Epynt SAC	
Rhôs Gôch SAC	
Elenydd - Mallaen SPA	
Mersey Estuary SAC, SPA, Ramsar	Not located within a Severn Trent Water WRZ but within the SEA assessment area
Humber Estuary SAC, SPA, Ramsar	
The River Wye flows into the Wye Estuary, which subsequently discharges into the Severn Estuary.	
The Wye Estuary is designated as a SAC and the Severn Estuary as a SSSI, SAC, SPA and a Ramsar site.	
Migneint – Arenig – Dduallt SPA	
The Dee Estuary Ramsar Site, SPA, SAC	
Thorne and Hatfield Moors SPA	
Lleyn Peninsula and the Sarnau SAC	
Rutland Water Ramsar Site, SPA	
Cors Fochno and Dyfi Ramsar Site, SPA, SAC	

Brown Moss SAC Cadair Idris SAC	

A large proportion of the designated sites within the assessment area are water dependent and therefore changes in the water regime (surface or groundwater) through abstraction, discharges and pollution could potentially affect the integrity and condition of these designated sites. The main potential effects that the SEA needs to take into account with regard to designated sites include:

- Groundwater level impacts on terrestrial habitats as a result of abstraction from surface water or groundwater.
- Flow/level impacts on aquatic habitats as a result of abstractions.
- Water pollution (point and diffuse sources).
- Effects on species or habitats associated with the increased occurrence of eutrophication where freshwater levels are insufficient to dilute sewage discharges or agricultural runoff. This is also an issue in estuaries where high tides lead to the re-suspension of organic matter and solids.
- Increased turbidity and concentration of other pollutants due to reductions in freshwater dilution.
- Changes in channel morphology leading to the loss, fragmentation or disturbance of habitats.

In addition to the abstraction of water and discharges to water, the construction of infrastructure associated with the distribution of water around the Severn Trent Water region (e.g. pipelines and pumping stations) and the management of water resources (e.g. water levels in reservoirs) can also have adverse effects on designated sites of nature conservation importance.

European Protected Species (EPS) are those which are afforded protection under the Habitats Regulations. Under these Regulations it is a criminal offence to deliberately kill, capture, or disturb a EPS, or to damage or destroy the breeding site or resting place of such an animal. Thus, EPS are protected wherever they occur and not just within designated sites. European Protected Species are different to those species for which SACs are designated. The specific list of EPS within the regulations is more limited than the list of species for which SACs can be designated. The following is a list of aquatic species, found in Annex II of the Habitats Directive, that are found in the assessment area:

- Freshwater pearl mussel
- White clawed crayfish
- Brook lamprey
- River lamprey
- Allis shad
- Twaite shad
- Bullhead
- Atlantic salmon
- Great crested newt
- Otter
- Floating water plantain

In addition to the Habitats Regulations, some species are also afforded protection at a national level under the Wildlife and Countryside Act 1981 (as amended). As well as covering some species that are listed in Annex II of the Habitats Directive, this Act also includes other species that are of national conservation importance. For example, water vole is one of the species listed in Schedule 5 of the Wildlife and Countryside Act 1981 that are found in assessment area. Although the WRMP is water focused, terrestrial as well as aquatic species need to be considered as they may be affected, for example through the construction of pipelines.

There are a number of species and habitats that have been identified as being of conservation importance under Natural Environmental and Rural Communities (NERC) Act Section 41 (Section 42 in Wales). Some of these NERC species and habitats are present in the assessment area, including:

- Eutrophic standing waters
- Mesotrophic lakes
- Blanket bog
- Fens (e.g. alkaline fens in the Wye Valley)
- Lowland meadows
- Lowland fens

- Wet woodland
- Blanket, basin and valley mires
- Reedbeds
- Upland hay meadows
- Coastal and floodplain grazing marsh
- Lowland raised bog

The National Biodiversity Climate Change Vulnerability Model (NBCCVM) aims to provide a spatially explicit assessment of the relative vulnerability of priority habitats based on established climate change adaptation principles. This vulnerability tool (suite of map-based-GIS outputs at a variety of scales) will be used as an assessment tool in the evaluation of impacts arising from each water resource management option as part of the SEA environmental assessment.

Figure 4.1 Designated Sites in the Assessment Area

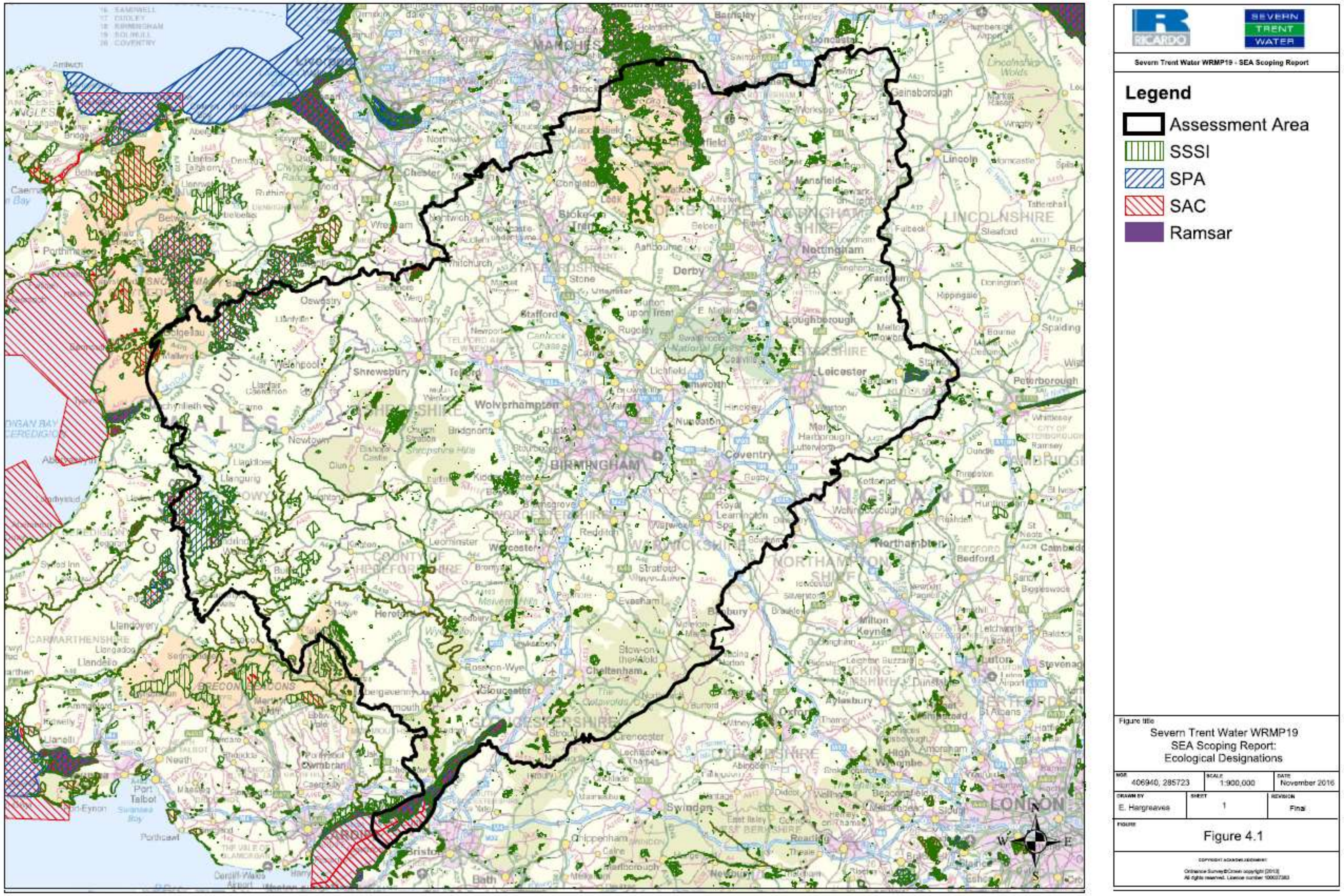
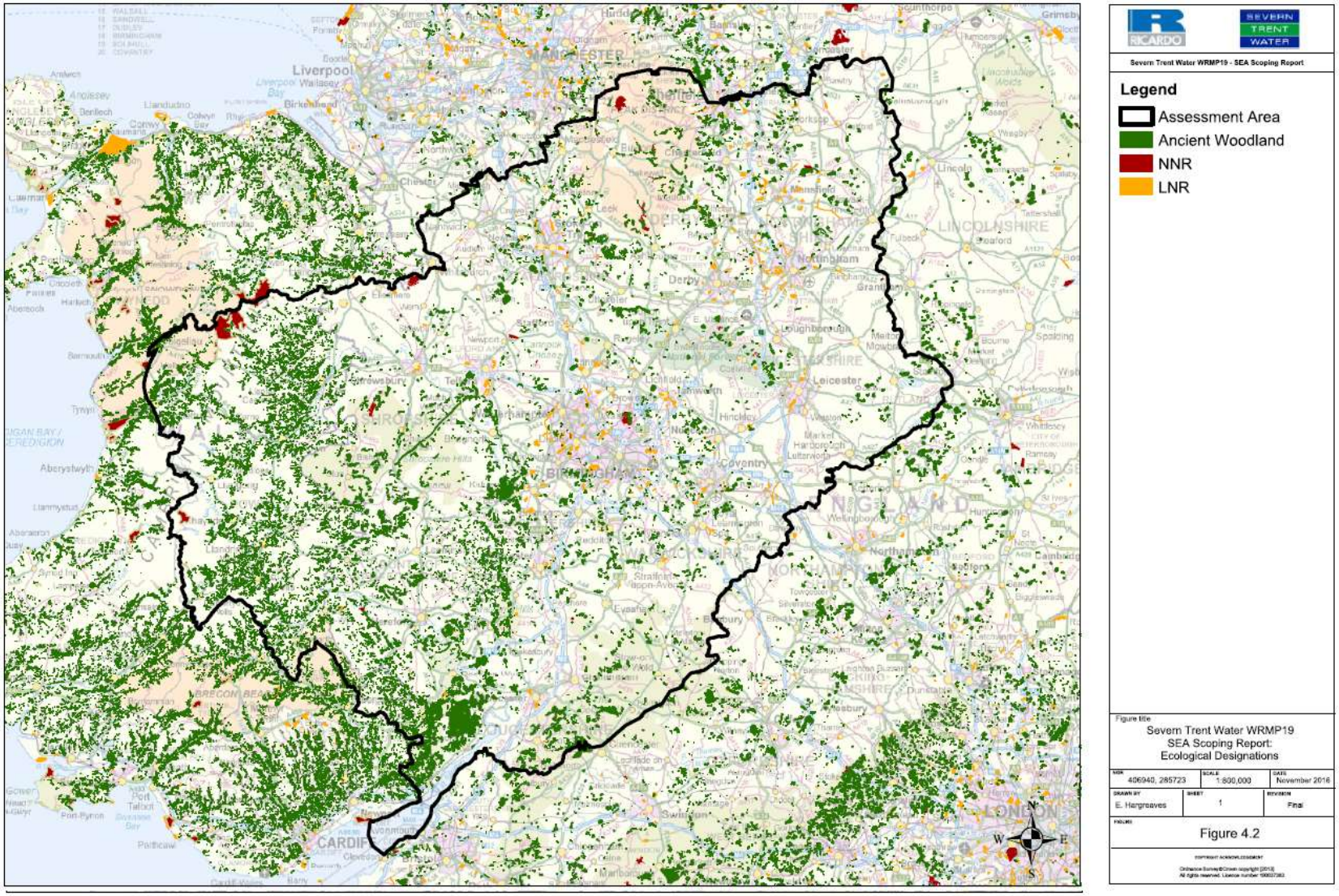


Figure 4.2 Ancient Woodlands, National Nature Reserves and Local Natural Reserves in the Assessment Area



4.2.2 Future Baseline

It is not expected that many additional sites will be designated under international or national legislation, with the focus therefore on achieving the conservation objectives set for each of these sites. A range of measures are included in the management plans for each site to contribute to these objectives and, assuming sufficient resources are in place, it is likely that the condition of these sites will improve over the next two or three decades to reach the objectives. These timescales recognise the time required for environmental changes to arise following positive interventions. A similar trend is likely for achievement of objectives associated with the NERC habitats.

The number of locally designated sites may increase slightly in response to growing community activities and the development of local environmental initiatives. An improving trend in condition of these sites is also anticipated with greater resources (particularly voluntary resources) devoted to their protection and enhancement. It is acknowledged that there is a need to allow wildlife to adapt to the impacts of climate change.

The Natural Environment White Paper[19] identified the Government's aims to work to achieve more, bigger, better and less-fragmented areas for wildlife, including no net loss of priority habitat and an increase of at least 200,000 hectares in the overall extent of priority habitats and at least 50% of SSSI to be in favourable condition, while maintaining at least 95% in favourable or recovering condition.

More broadly, the White Paper and more recent Government policy encourages partnership working by a wide range of organisations (including water companies where applicable) to take a catchment and/or landscape-scale perspective to the management of biodiversity, flora and fauna. Catchment-based approaches are likely to be increasingly taken with respect to the delivery of biodiversity and ecological objectives for water-dependent sites and species, with partnership working a key component of the delivery of improvement activities.

The new Environment Act (2016) for Wales[20] also promotes the sustainable management of natural resources – including preventing significant damage to ecosystems which need to be healthy to withstand increased pressures and demands.

'Biodiversity 2020', the Strategy for England's wildlife and ecosystem services[21] builds on the Natural Environment White Paper. The mission for the strategy is *'to halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people'*.

The Natural Environment White Paper, 'Biodiversity 2020' as well as the recent Well-being for Future Generations Act (2015) for Wales[22] place significant emphasis on the importance of enhancing people's personal connection with wildlife and nature and better understanding of the value of nature's services.

4.2.3 Key Issues

The key sustainability issues arising from the baseline assessment for biodiversity are:

- The need to protect or enhance the region's biodiversity, particularly protected sites designated for nature conservation.
- 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 recognise the importance of allowing wildlife to adapt to climate change.
- The need to control the spread of Invasive Non-Native Species (INNS)
- The need to engage more people in biodiversity issues so that they personally value biodiversity and know what they can do to help, including through recognising the value of ecosystem services.

[19] Defra (2011) The Natural Choice: securing the value of nature. Natural Environment White Paper.
[20] Environment (Wales) Act 2016
[21] Defra (2011) Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services
[22] Well-being for Future Generations (Wales) Act 2015

4.3 Population and Human Health

4.3.1 Baseline

Population

The East Midlands and West Midlands regions are projected to increase their population by 14% and 15% respectively by 2039, based on the 2014 baseline figures of 5.7 million and 4.6 million respectively. The West Midlands Region contains one of the largest conurbations in England, as well as some of the country's most rural and sparsely populated counties. Birmingham, the second largest local authority in the UK by population, had an estimated population of 1,111,300 million people according to the Office of National Statistics (ONS) mid-2015 estimates. In the South West region of England, the population is projected to increase from 5.4 million to 6.3 million by 2039 whilst in Wales the population will grow by only 6% to an estimate of 3.3 million. To provide context, the population in England as a whole is expected to increase by 16% by 2039. **Table 4.2** shows the population statistics and projections for the regions that fall within the assessment area.

Table 4.2 Population[23] statistics and projections (millions)

Period / Region	2014	2039	Population change (%)
West Midlands	5.7	6.5	14%
East Midlands	4.6	5.3	15%
South West	5.4	6.3	17%
Wales	3.1	3.3	6%
England	54.3	63.3	16%

The long-term issues relating to population growth and associated requirement for housing and water (and wastewater) infrastructure provision represent key issues for the strategies required within the long-term planning horizon of the WRMP. However, the result of the UK's recent referendum to leave the European Union (EU) may possibly lead to greater short-term uncertainty regarding future population and housing growth.

Human Health and Deprivation

The WRMP has the potential to influence quality of life, including human health, well-being, amenity and community, through alterations to the operation of existing infrastructure, the construction and operation of new infrastructure, changes to the methods used for water charging, and the price of water. For example, emissions of pollutants to air from operations and transportation could affect respiratory health, whilst traffic, odour and noise could create nuisance and reduce quality of life.

Water resources management and planning is of critical importance in maintaining water reliable and safe water supplies for health and wellbeing of the population supplied by Severn Trent Water. Some established water resource schemes (e.g. reservoirs) can also provide benefits to quality of life through the provision of recreational (passive or active) opportunities[24].

It is difficult to quantify the extent to which existing operations and facilities are, or are not, influencing the local environmental quality and hence human health. The SEA will assess the potential effects of each option, programme and plan on the local environmental quality and the potential implications (adverse or beneficial) on human health.

[23] ONS (2016) Subnational population projections for England: 2014-based - http://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/nationalpopulationprojections/2015-10-29#main-points

[24] Well-being for Future generations (Wales) Act 2015

In 2011, 45.1% of the population in West Midlands reported to be in 'very good health', with a further 34.8% reporting to be in 'good' health. In Wales, a slightly higher percentage of the population (46.6%) was reported as in 'very good health', although those who reported to be in 'good' health only amassed to 31.1%.These figures are generally aligned to the national averages across England[25]. It has been shown that, in some cases, people in disadvantaged areas experience greater exposure to negative impacts on human health including air pollution, flooding and proximity to large industrial and waste management sites[26]. The Index of Multiple Deprivation combines a number of indicators, chosen to cover a range of economic, social and housing issues[27], into a single deprivation score for each Lower Super Output Area[28] in the UK. This allows each area to be ranked relative to one another according to their level of deprivation. The Indices are used widely to analyse patterns of deprivation, identify areas that would benefit from special initiatives or programmes and as a tool to determine eligibility for specific funding streams. The English Index of Multiple Deprivation (2015)[29] and the Welsh Index of Multiple Deprivation (2014)[30] have been developed slightly differently and cannot be compared directly. **Figure 4.3** shows the Index of Multiple Deprivation across the assessment area.

As is the case with the rest of the UK, most large urban centres in the assessment area contain areas with high levels of deprivation. These include Birmingham, Nottingham, Mansfield, Stoke-on-Trent and Leicester. However, there are also pockets of deprivation associated with smaller population centres, for example in Worcester and Kidderminster.

Data relating to drinking water quality, pollution incidents and air quality, which may have indirect effects on amenity and human health are covered in separate sections of this Scoping Report. The Consumer Council for Water report (2016)[31] on complaints and enquiries for the year 2015-16 shows that overall industry complaints decreased by 1% from 10,135 in 2014-15 to 9,991 in 2015-16. Severn Trent Water reported 866 complaints during 2015-2016, a 23% decrease from the previous period (2014-2015).

Measures that may be included in the WRMP could potentially affect communities in terms of nuisance, loss of sense of place and other adverse effects on well-being. It is not possible to collect baseline data against which to assess such effects. These effects will need to be assessed in the SEA based on the specific effects identified at the option, programme and plan level taking account of any planned mitigation measures to be included.

Affordability of Water

Nationally, approximately 24% of households spend more than 3% of their income (after housing costs) on water and sewerage bills, and 11% spend more than 5%[32]. Ofwat and government policy has focused on addressing this issue through continued incentives for water companies to drive out financial efficiencies in its operations and investment programmes, as well as consider the use of 'social tariffs' for those struggling to pay their water bills. It should be noted that Severn Trent Water already has the lowest average household bills in England and Wales for water and wastewater services combined.

Water metering can help customers reduce their bills through improved water use efficiency. Metering can help customers reduce their bills through improved water use efficiency. However, there are concerns that metering can disadvantage vulnerable and low income groups. Severn Trent Water's

[25] Office for National Statistics - General Health in England and Wales: 2011 and comparison with 2001. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandwellbeing/articles/generalhealthinenglandandwales/2013-01-30

[26] Defra (2006) Air Quality and Social Deprivation in the UK: an environmental inequalities analysis

[27] Income Deprivation, Employment Deprivation, Health Deprivation and Disability, Education Skills and Training Deprivation, Barriers to Housing and Services, Living Environment Deprivation, and Crime.

[28] Super Output Areas (SOAs) are a set of geographical areas developed following the 2001 census. The aim was to produce a set of areas of consistent size, whose boundaries would not change, suitable for the publication of data such as the Indices of Deprivation. They are an aggregation of adjacent Output Areas with similar social characteristics. Lower Layer Super Output Areas (LSOAs) typically contain 4 to 6 OAs with a population of around 1500

[29] http://www.communities.gov.uk/communities/research/indicesdeprivation/deprivation10/

[30] http://wales.gov.uk/topics/statistics/publications/wimd11guidance/?lang=en

[31] Consumer Council for Water (2016) *End of Year Complaints and Enquiries Report – 1 April 2015-31 March 2016 http://www.ccwater.org.uk/wp-content/uploads/2016/07/Consumer-Council-For-Water-2015-16-Year-End-Report-on-Consumer-Complaints-and-Enquiries-1.pdf*

[32] Ofwat (2015) Affordability and debt 2014-15. http://www.ofwat.gov.uk/wpcontent/uploads/2015/12/prs_web20151201affordability.pdf

current strategy is to continue offering unmetered customers the option to swap to a water meter free of charge as well as metering all new household properties.

Recreation and Tourism

WRMP options have the potential to affect areas with recreation value. Effects could arise as a result of scheme operation (for example on river water levels), or due to scheme construction (for example due to restricted access).

Figures 4.2 and 4.10 show some of the areas that may be used for recreation within the assessment area. This includes Areas of Outstanding Natural Beauty (AONB) (see Landscape and Visual Amenity topic), National Nature Reserves (NNRs) and Local Nature Reserves (LNRs) (see Biodiversity, Flora and Fauna topic).

There are a variety of opportunities for recreation and tourism within assessment area. Many of the recreational and cultural offerings are represented in other topic areas in the baseline. For example the WRZs include a number of water resources of recreation importance (see Section 4.5) including canals (e.g. the Shropshire Union Canal and the Grand Union Canal), reservoirs for sailing or fishing and river reaches of particular importance with respect to navigation (e.g. the large sections of the Warwickshire River Avon) and angling (coarse and salmonid).

Other, non-water based, recreational and cultural resources in the assessment area include a number of nature reserves presented in Section 4.2. Section 4.8 identifies the importance of the assessment area with respect to heritage assets, including two internationally recognised World Heritage Sites and 242 Registered Parks and Gardens. Section 4.9 presents the landscape baseline, which includes a number of Areas of Outstanding Natural Beauty (AONB) and National Parks within the assessment area.

Public areas of open space, National Parks (see Landscape and Visual Amenity topic), country parks[33], Public Rights of Way, walking routes and cycle routes are also important with respect to recreation and tourism. The National Planning Policy Framework (NPPF) for England states planning policies should protect and enhance public rights of way and access. All Local Authorities are required to prepare and publish Rights of Way Improvement Plans (ROWIPs). These plans explain how improvements made by local authorities to the public rights of way network will provide a better experience for a range of users, including pedestrians, cyclists, horse riders, horse and carriage drivers, people with mobility problems, and people using motorised vehicles (e.g. motorbikes).

The NPPF defines green infrastructure as 'a network of multi-functional green space, urban and rural, which is capable of delivering a wide range of environmental and quality of life benefits for local communities' (including rivers and ponds). Local planning authorities are required to plan positively for strategic networks of green infrastructure, and take account of the benefits of green infrastructure in reducing the risks posed by climate change. The majority of Local Authorities have therefore developed Green Infrastructure strategies or studies addressing these issues. Green infrastructure will often play a large part in local recreational resources.

Tourism is the fifth largest industry in the UK and supports 2.2 million jobs in England (forming England's third largest employment sector), contributing nearly £121 billion to the economy[34]. During 2015, 102.7 million domestic overnight trips were taken in England, with 299.6 million bed nights and expenditure of £19.6 billion. Around 10.4 million domestic tourism trips were taken in Wales during 2015, staying for 36.2 million bed nights and spending £2.0 billion[35]. The West Midlands area is the 3rd most visited region of the UK, with 1.4 million visits undertaken by overseas visitors in 2015.

4.3.2 Future Baseline

The population in the assessment area is expected to grow at a rate between 6% and 17% (see Table 4.2), with an increasing proportion of people at or above state pension age. Household projections show potential increases of between 21% and 45% across the assessment area, with an increasing

[33] Area designated for people to visit and enjoy recreation in a countryside environment
[34] Deloitte (2010) The Economic Contribution of the Visitor Economy: UK and the Nations
[35] The GB Tourist Statistics 2015
https://www.visitbritain.org/sites/default/files/vb-corporate/Documents-Library/documents/England-documents/gb_tourist_report_2015.pdf

proportion of one person households and average household size decreasing[36]. However, the result of the UK's recent referendum to leave the European Union (EU) may lead to greater uncertainty in the short term regarding future population and housing growth.

The Water White Paper describes modelling undertaken under a range of scenarios which suggests that by 2030, water bills may increase by an average of 14%. This is below the expected rate of inflation. Reforms to the water industry stemming from the Water White Paper and now being introduced are designed to increase competition and innovation in the water industry market, and drive cost-effective responses to water resources challenges, thereby limiting the impact on customer bills. Guidance from the Government was issued in 2012 on the introduction of social tariffs which enable water companies to offer more support to customers at risk of affordability problems[37]. It also ensures that water companies have the freedom to offer enhanced terms to WaterSure customers (a capped charge intended to help customers who pay for their water charges via a water meter who experience difficulties as a result of high water usage or low income) through their social tariffs from April 2013. Severn Trent Water introduced the Together Tariff in 2015, to help people on lower incomes who want to be good payers but have fallen into debt.

In response to recent studies, access to the recreational resources, green spaces and the historic environment will have greater importance in future planning[38]. For example, the National Ecosystem Assessment and the Marmot Review, *Fair Society, Healthy Lives*, demonstrate the positive impact that nature has on mental and physical health and, as a result, the Government intends to establish a Green Infrastructure[39] Partnership with civil society to support the development of green infrastructure in England. The 'Sustaining a Living Wales' consultation document has the aim to ensure that Wales has increasingly resilient and diverse ecosystems that deliver economic, environmental and social benefits. Improvements to the quality of the water environment and certain potential climate change impacts will present opportunities for an expanding tourist industry in the region[40].

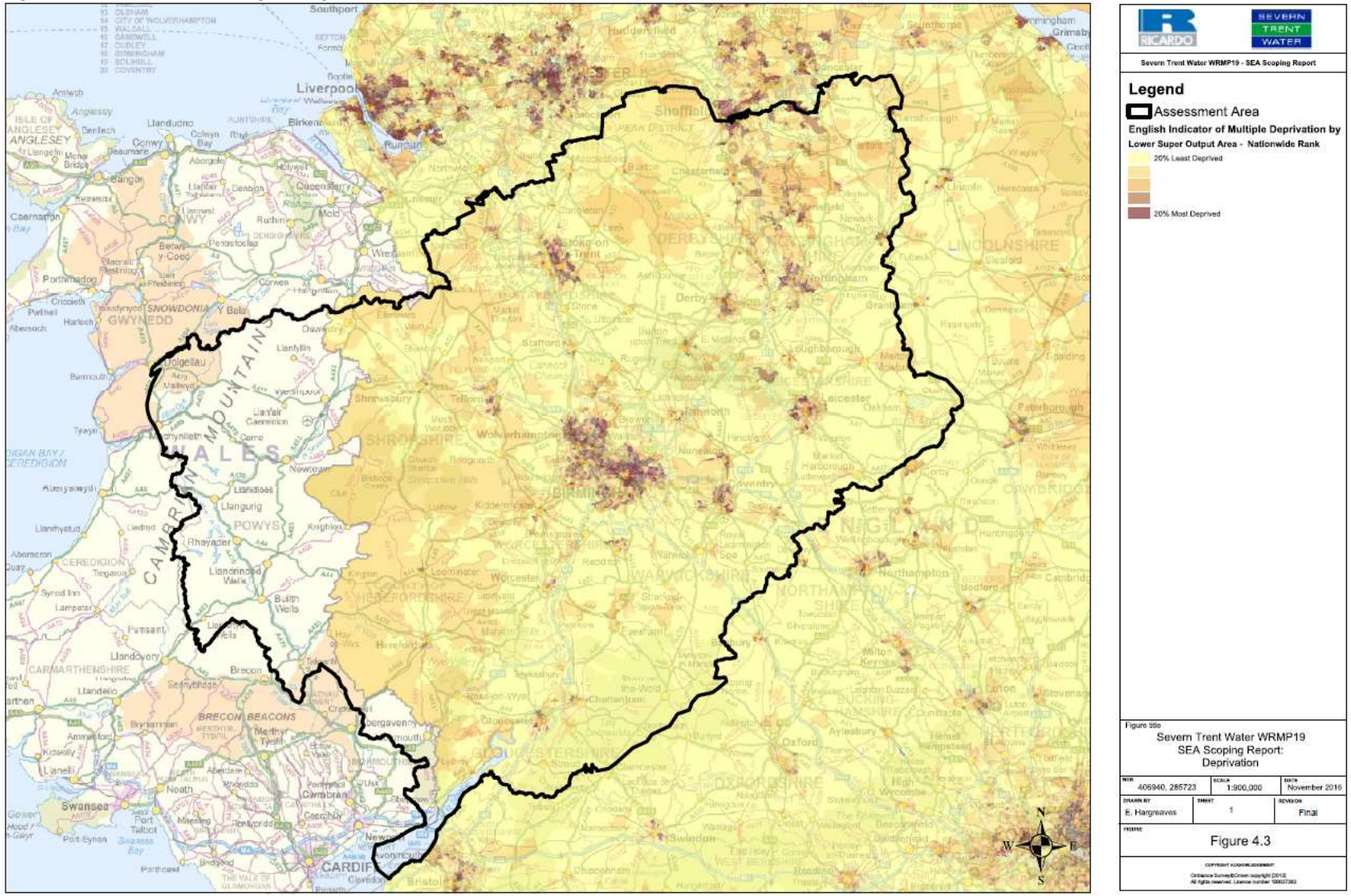
4.3.3 Key Issues

The key sustainability issues arising from the baseline assessment for population and human health are:

- The need to ensure water supplies remain affordable especially for deprived or vulnerable communities, reflecting the importance of water and sewerage services for health and wellbeing.
- The need to ensure continued improvements in levels of health across the region, particularly in urban areas and deprived areas.
- 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 a balance between different aspects of the built and natural environment that will help to provide opportunities for local residents and tourists, including opportunities for access to, protecting and enhancing recreation resources, green infrastructure and the natural and historic environment.
- The need to accommodate an increasing population.
- 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 well-being and the economy.

[36] ONS (2011) Housing Statistical Release - Household Projections 2008 to 2033, England
[37] Defra (2011) Water for Life - Water White Paper
[38] Defra (2011) *The Natural Choice: securing the value of nature, The Natural Environment White Paper*
[39] Green infrastructure is a term used to refer to the living network of green spaces, water and other environmental features in both urban and rural areas.
[40] Defra (2016) The UK Climate Change Risk Assessment 2016 Evidence Report.

Figure 4.3 Indices of Multiple Deprivation in the Assessment Area



4.4 Material Assets and Resource Use

4.4.1 Baseline

Water Use

In 2015/16[41], Severn Trent Water delivered around 1,846 million litres of water per day (Ml/d) into its supply system. Severn Trent Water currently transfers around 60 Ml/d to other water companies (mainly Yorkshire Water) and imports approximately 350 Ml/d from other water companies (South Staffordshire Water, Anglian Water and Welsh Water via the Elan Valley Reservoirs system). Severn Trent Water has ongoing programmes to reduce leakage from its network and to encourage more efficient use of water by customers. Leakage levels from the water distribution system reported by Severn Trent Water for 2015/2016 was 434Ml/d[41], 10Ml/d lower than the proposed target of 444 Ml/d. Water consumption per person is relatively low in the Severn Trent Water supply area compared to other parts of the country, with an average use per person estimated at around 125 litres/day compared to a national average in England and Wales of around 145 litres/day.

Resource use and waste

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.

Waste going to landfill has more than halved over the period 2004/5 to 2014/15 (19,822 thousand tonnes to 6,361 thousand tonnes) and a rate of 24%; household recycling rates have climbed to nearly 44% (2014/15)[42]; waste generated by businesses declined by 29% in the six years to 2009 and business recycling rates are above 50%[43]. 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.

Data on waste arisings is collected in a range of categories. The activities of the water industry contribute to construction, demolition and excavation waste (CDEW), through construction of new infrastructure. The water industry also contributes to several waste streams through the operation of facilities. Waste streams include commercial and industrial waste (C&I) (statistics include waste arisings from the power and utilities sector, which includes water supply and sewage removal), and also hazardous wastes. **Table 4.3** shows waste according to waste type by region in 2006.

Table 4.3 Waste Arisings by Region

Waste	East Midlands	West Midlands	Wales[44]	South West
Commercial and Industrial waste arisings produced in region (million tonnes) (2009)[45]	6.3	5.2	3.6	4.0
Construction & Demolition Waste (million tonnes) (2006)[46]	9.8	9.8	12.2	9.4
Total waste produced by region (2006)[47]	24.3	23.0	Unavailable	44.5

[41] Severn Trent Water (2016) Annual Performance Report https://www.stwater.co.uk/about-us/responsibilties-to-you/regulatory-performance/
[42] Defra (2015) Local authority collected waste statistics – local authority data. www.gov.uk/government/uploads/system/uploads/attachment_data/file/481060/LA_and_Regional_spreadsheet_2014-15_publication.ods
[43] Defra (2011), Government Review of Waste Policy in England 2011
[44] WAG (2010) State of the Environment <http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=5815> accessed 1 May 2011
[45] Defra (2011) Waste Data Overview in England 2011
[46] Sustainable consumption and production: <http://archive.defra.gov.uk/sustainable/government/progress/regional/data-sheets/> accessed 18 April 2012
[47] Sustainable consumption and production: <http://archive.defra.gov.uk/sustainable/government/progress/regional/data-sheets/> accessed 18 April 2012

WRMP options that require infrastructure development may result in the use of raw materials and the production of waste. The operation of some WRMP options may result in additional chemical use and the production of waste.

4.4.2 Future Baseline

The Government's national aspiration is to reduce water usage to an average of 130 litres per person per day by 2030. Government, Ofwat and the Environment Agency expect that leakage will not rise in any water company area and leakage targets must be set that take account of customer priorities for reliable water supplies.

There is the potential for increase in operational waste from the water sector as regional population increases and standards of treatment are increased through regulatory requirements.

With 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. One of the Waste Framework Directive targets is for at least 70% of construction and demolition waste to go to recovery by 2020.

The Government's National Infrastructure Plan (NIP) (2010) included visions to manage natural capital sustainably; treat water and waste in ways that sustain the environment and enable the economy to prosper; ensure a supply of water that meets the needs of households, businesses and the environment now and in the future and deals with waste in accordance with the waste hierarchy. The plan was updated in 2014, setting out progress to date whilst including detailed delivery plans to 2020 in key economic sectors[48].

4.4.3 Key Issues

The key sustainability issues arising from the baseline assessment for Material Assets and Resource Use are:

- The need to minimise the consumption of resources, including water and energy.
- The need to reduce the total amount of waste produced in the region, from all sources. The need to recognise waste as a potential resource and reuse waste productively where possible to support development of the circular economy.
- The need to reduce the proportion of waste sent to landfill.
- The need to continue to actively control leakage from the water supply system and promote the efficient use of water to help reduce future demand for water .

4.5 Water

4.5.1 Baseline

In the context of the Water Framework Directive (WFD), the water environment includes rivers, lakes, estuaries, groundwater and coastal waters out to one nautical mile. The aquatic environment has been characterised as part of the UK Government's reporting obligations to the EU under the WFD and this provides the most appropriate baseline reference. **Table 4.4** shows the current classification (2015) of surface water bodies in the assessment area.

The WFD brings together the planning processes of a range of other European Directives. These Directives establish protected areas to manage water, nutrients, chemicals, economically significant species, and wildlife, and have been brought in line with the planning timescales of the WFD.

Surface Waters: Rivers and Canals

[48] HM Treasury (2014) National Infrastructure Plan 2014: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/381884/2902895_NationalInfrastructurePlan2014_acc.pdf

The part of the assessment area that falls within the Severn RBD includes the River Severn and its major tributaries the Teme and Warwickshire Avon. The part of the assessment area that falls within the Humber RBD includes the River Trent, Derbyshire Derwent, River Soar, River Tame, River Anker and River Mease**. Figure 4.4** shows the distribution of surface waters in the assessment area.

Surface Waters: Lakes and Reservoirs

In total, there are 68 lakes/reservoirs in the assessment area, including Carsington Water, Draycote Water, Llyn Clywedog and Ladybower Reservoir. **Figure 4.5** shows the groundwater distribution of surface waters in the assessment area.

Groundwater

The majority of groundwater that Severn Trent Water abstracts is sourced from the Sherwood Sandstone (Permo-Triassic Sandstone) aquifers (**Figure 4.5**). The Environment Agency considers that licensed groundwater abstraction is fully utilised over much of the assessment area. Both the quantity and quality of groundwater is extremely important in maintaining these resources. Groundwater is vulnerable to pollution from surface activities since aquifers underlie up to two-thirds of the land surface in this densely populated area. Groundwater quality issues include high nitrate levels in some aquifers.

Source Protection Zones (SPZ) provide additional protection to safeguard drinking water quality. This is achieved through constraining the proximity of an activity that may impact upon drinking water abstraction. They are defined around large and public potable groundwater abstraction sites, and the groundwater travel time to an abstraction.

In the assessment area, the main reasons for poor groundwater quality status are high or rising nitrate concentrations, with some failures for pesticides and other chemicals. The main reason for poor quantitative status in groundwater is that abstraction levels exceed the rate at which aquifers recharge.

Estuaries

The Severn Estuary (including the Wye Estuary), Humber Estuary, Dee Estuary and Mersey Estuary European Marine Sites[49] (and which form part of the Marine Protected Area (MPA) network) are considered within the SEA due to hydrological connectivity with the assessment area. All are internationally recognised for nature conservation with Ramsar, SAC and SPA designations.

Catchment Abstraction Management Strategies

A national review of abstraction licences was undertaken by the Environment Agency through the CAMS (Catchment Abstraction Management Strategies) process in 2004. This has been updated in subsequent years where applicable and to align the assessment process with the WFD. The latest review was undertaken in 2013 and the outputs for each CAMS area are reported in a set of Abstraction Licensing Strategies.

CAMS areas are based on river catchment boundaries and overlap with assessment area. The CAMS work seeks to identify where additional abstractions can be made from rivers, where no additional abstractions can be made and where over-abstraction is possible through existing licensed abstractions. This has been achieved by identifying the 'resource availability status' for specific Water Resource Management Units (WRMUs) and Groundwater Management Units (GWMUs) within individual catchments. There are five categories of water availability:

- High hydrological regime: There is more water than required to meet the needs of the environment. However, due to the need to maintain the near pristine nature of the water body, further abstraction is severely restricted.
- Water Available: 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: Fully Licensed flows fall below the EFIs. 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. It may also be appropriate to investigate the

[49] 'European marine sites' is the collective term for SACs and SPAs that are covered by tidal water.

possibilities for reducing fully licensed risks. Water may be available if you can 'buy' (known as licence trading) the entitlement to abstract water from an existing licence holder

- No Water Available: Recent Actual flows are below the EFI. This scenario highlights water bodies where 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. Water may be available if you can buy (known as licence trading) the amount equivalent to recently abstracted from an existing licence holder
- HMWBs (and /or discharge rich water bodies): These water bodies have a modified flow that is influenced by reservoir compensation releases or they have flows that are augmented. These are often known as 'regulated rivers'. They may be managed through an operating agreement, often held by a water company. The availability of water is dependent on these operating agreements.

Table 4.5 shows the Environment Agency representation of resource availability based on the worst downstream water body at low flows (the flow percentile called Q95) for the Severn Trent Water supply area.

Water Quality

Since 2007 water quality has been classified according to several quality elements in line with the requirements of the WFD. For surface waters, there are two separate status classifications for water bodies: ecological and chemical. For a water body to be in overall 'good' status/potential both ecological and chemical status must be at least 'good'. Biological status classification considers the condition of biological quality elements, e.g. aquatic invertebrates, plants and fish, the morphology of the habitat available, concentrations of supporting physico-chemical elements e.g. oxygen or ammonia and concentrations of specific pollutants.

Under the WFD there are two separate classifications for groundwater bodies: chemical status and quantitative status. A groundwater body will be classified as having poor quantitative status in the following circumstances: where low groundwater levels are responsible for an adverse impact on rivers and wetlands normally reliant on groundwater; where abstraction of groundwater has led to saline intrusion; where it is possible that the amount of groundwater abstracted will not be replaced each year by rainfall. For a groundwater body to be at good status overall, both chemical status and quantitative status must be good. In addition to assessing status, there is also a requirement to identify and report where the quality of groundwater is deteriorating as a result of pollution and which may lead to a future deterioration in status. The main reasons for poor status were identified as high or rising nitrate concentrations, with some failures for pesticides and other chemicals. The main reason for poor quantitative status is that abstraction levels, mainly for public water supply, exceed the rate at which aquifers recharge[50].

The Environment Agency has undergone a monitoring programme aimed at reducing the uncertainty in the classification of waterbodies. The number of uncertain failures has been reduced from 8% to 5% and the number of failures where the cause is unknown has reduced from 17% to 6%[51]. The main reasons for failure, and the contribution of each, are presented in **Table 4.6**, which identifies 4% of waterbodies failing as a result of insufficient flow/abstraction.

Bathing Waters

There are no bathing waters within the assessment area. However, a number of bathing waters are located on or in proximity to estuaries that are in hydrological connectivity to the Severn Trent Water supply area (e.g. Humber Estuary, Dee Estuary and Severn Estuary). The bathing waters located in proximity to these estuaries have all passed standards for bathing water quality since 2007 and in many cases met the even higher standards associated with the Revised Bathing Water Directive.

Flood Risk

Flooding can result from rivers and the sea, directly from rainfall on the ground surface and rising groundwater, overwhelmed sewers and drainage systems, and from reservoirs, canals and lakes and

[50] Environment Agency (2015), Severn River Basin District River Basin Management Plan
[51] Environment Agency (2011) Water Framework Directive: Reducing uncertainty in classification Progress report

other artificial sources. The Environment Agency's Flooding in England report[52] and the Flooding in Wales report[53] highlight the baseline with regard to flood risk in the assessment area.

In 2007, some of Severn Trent Water's customers were affected by the severe flooding that occurred in the River Severn catchment. The extreme floods of 2007 prompted the Pitt Review (2008) and the subsequent Flood and Water Management Act 2010. In 2008-2009, the Environment Agency spent approximately £427 million on building, improving and keeping flood defences such as managed river channels, walls and raised embankments, flood barriers and pumps in good condition, which reduced the risk of flooding to over 176,000 households across England. The Government further recognised the importance of investing in flood risk and coastal management and will invest £3 billion between 2016 and 2021 into a programme that will result in flood risk and coastal erosion reduction. Climate change may have a significant effect upon future flood risk in the region. This is discussed further below and in the Air and Climate Change topic.

[52] Environment Agency (2009) Flooding in England: A National Assessment of Flood Risk
[53] Environment Agency (2009) Flooding in Wales: A National Assessment of Flood Risk

Figure 4.4 Water Framework Directive (WFD) Surface Water Features in the Severn Trent Water Assessment Area

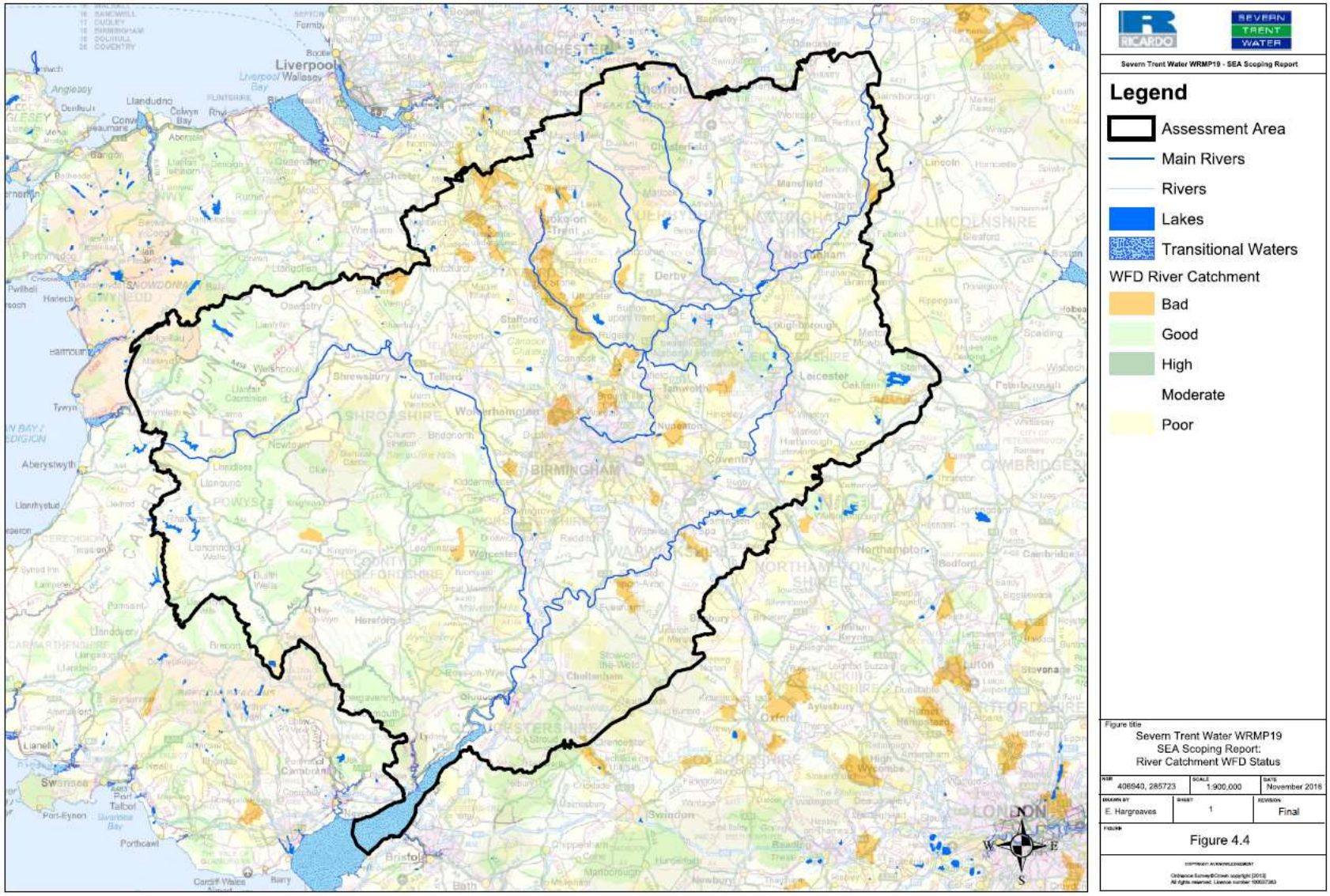


Figure 4.5 Water Framework Directive (WFD) Groundwater Quantity Status in the Severn Trent Water Assessment Area

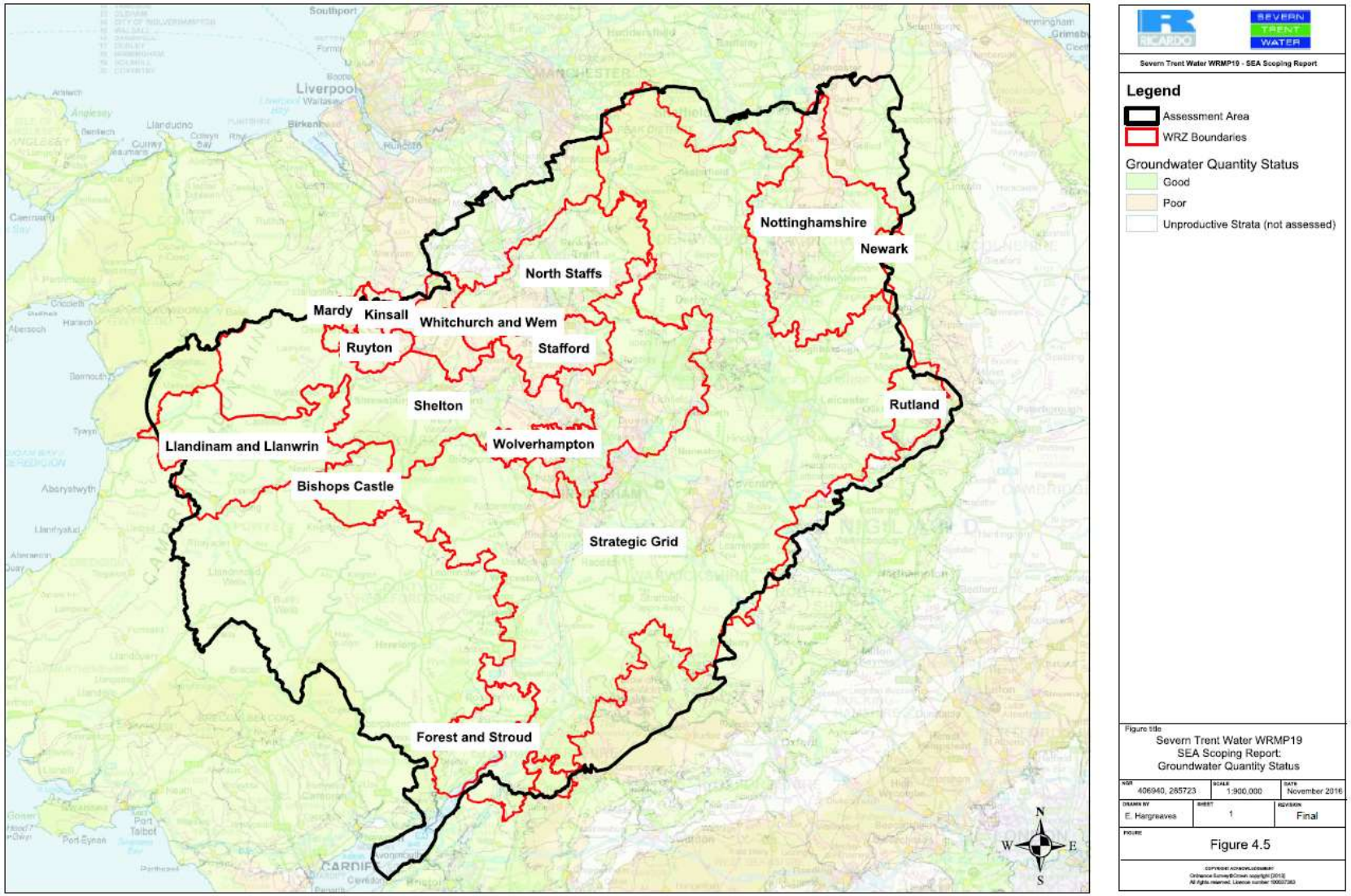


Table 4.4 Key statistics for WFD Catchments within the assessment area

RBD	Relevant RBMP catchment	% at good ecological status or potential		% assessed at good or high biological status		% at good chemical status		% at good status overall	
		RBMP 2015	Target 2021	RBMP 2015	Target 2021	RBMP 2015	Target 2021	RBMP 2015	Target 2021
Humber	Idle and Torne	9	9	23	23	90	90	9	9
	Derbyshire Derwent	17	N/A	37	N/A	52	N/A	15	N/A
	Dove	3	N/A	19	N/A	97	N/A	3	N/A
	Lower Trent and Erewash	6	N/A	18	N/A	99	N/A	6	N/A
	Staffordshire Trent Valley	2	N/A	12	N/A	95	N/A	2	N/A
	Tame and Anker Mease	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Soar	6	N/A	17	N/A	98	N/A	6	N/A
	Don and Rother	8	N/A	10	N/A	97	N/A	8	N/A
Severn	Teme	30	65	28	59	98	98	28	63
	Severn Uplands	24	82	43	61	81	95	24	82
	Shropshire Middle Severn	5	5	7	22	97	98	5	5
	Worcestershire Middle Severn	6	14	24	16	96	96	6	14
	Severn Vale	15	23	33	33	100	100	15	23
	Warwickshire Avon	0	5	19	19	97	97	0	5
Western Wales	North West Wales Catchment	41	N/A	N/A	N/A	87	N/A	40%	74%
Anglian	Welland Catchment	13	18	13	13	100	100	13	18

Table 4.5 Environment Agency CAMS Assessment of Resource Availability Status

Resource availability status assessed by the Environment Agency in the CAMS process			**Commentary** HOF - "Hands Off Flow": the river flow below which no abstraction can take place WRMU – Water Resources Management Unit GWMU – Groundwater Management Unit
Relevant CAMS	**Relevant CAMS Management Unit**	**Resource availability status**	
Soar CAMS	WRMU 1. The Soar and Tributaries WRMU 2. The River Wreake	Restricted Water Available	No new unconstrained abstraction will be granted. There is a time limit of 31st March 2025
Lower Trent & Erewash CAMS	WRMU 1. Rivers Trent, Erewash, Greet & Devon and Diseworth Sherwood Sandstone Group GWMU	Water available	No new unconstrained abstraction will be granted. HOF of 2,650 Ml/d will be applied to applications found to be in continuity with the river. There is a time limit of 31st March 2027.
	WRMU 2. Dover Beck and the Ravenshead (south) Sherwood Sandstone Group GWMU	No Water Available	The catchment is closed to any further consumptive abstraction from both surface water and groundwater and new licences are not available.
	WRMU 4. River Leen and the Hucknall Lower Magnesian Limestone GWMU	Restricted Water Available	The catchment is closed to any further consumptive abstraction from both surface water and groundwater and new licences are not available.
	WRMU 3. Wollaton Sherwood Sandstone Group GWMU	No Water Available	Closed to protect baseflows.
Idle and Torne CAMS (Doncaster, Worksop, Retford, Mansfield)	WRMU 1. Upper Meden WRMU 2. Upper Poulter WRMU 3. Oldcotes Dyke WRMU 4. River Idle WRMU 5. River Torne	No Water Available	The whole catchment is closed

Derbyshire Derwent CAMS (Derby, Belper, Buxton, Matlock)	WRMU 2. Wye and Tributaries WRMU 4. Amber WRMU 5. Ecclesbourne and Markeaton WRMU 1. Derwent Uplands WRMU 3. Middle Derwent WRMU 6. Derby to confluence	No Water Available	No new unconstrained abstraction will be granted. Water is only available during periods of medium to high flow subject to a HOF condition. There is a time limit of 31st March 2030
Tame, Anker & Mease In Progress (Burton on Trent, Tamworth, Hinckley, Nuneaton and Birmingham)	WRMU 1 Tame, Anker, Cole and Trent	Water Available	All new licences will be subject to specific HOF conditions.
	WRMU 4 Mease	No Water Available	Water will be available at all flows except lower flows due to the HOF condition of 19.3Ml/d at Clifton Hall gauging station. Abstractions will require the approval of Natural England. The impact of any abstraction will be assessed across the flow range against Natural England target flows. There is a time limit of 31 March 2026
	WRMU 2 Blythe	Water Available	All new consumptive or partially consumptive licences will be issued with a HOF condition of 100Ml/d at Castle Farm gauging station. Water is only available during periods of high flows due to the HOF condition. There is a time limit of 31 March 2026
	WRMU 5 Burton Groundwater	Restricted Water Available	Closed as all available resources have been licensed. Water may be available if you can 'buy' (known as licence trading) the entitlement to abstract water from an existing licence holder.
	WRMU 3 Bourne /Black Brook	No Water Available	No new licences will be granted and there is no impact on existing licence holders.
Worcestershire Middle Severn CAMS (Telford, Wolverhampton, Dudley, Kidderminster, Bromsgrove, Droitwich and Worcester)	WRMU 1. Dowles Brook (flows into River Severn which has No Water Available)	Restricted Water Available	Water is only available during periods of medium to high flows subject to a HOF condition. The HOF condition applied will state that abstraction must cease when flow in the Dowles Brook falls below 3 Ml/d as measured at the Environment Agency gauging station at Oak Cottage. A time limit of 31 March 2026 will be imposed on the licence
	WRMU 2. Stour, Worfe & Salwarpe; WRMU 3. Triassic Sandstone Aquifer (GWMU)	Restricted Water Available	Water is only available during periods of high flows subject to a HOF conditions. The HOF conditions applied will state that abstraction must cease when flow in the River Stour falls below 260 Ml/d as measured at the Environment Agency gauging station at Callows Lane and when flow in the River Salwarpe falls below 70 Ml/d as measured at the Environment Agency gauging station at Harford Hill. A time limit of 31 March 2026 will be imposed on the licences.

			GWMU:All units within the Worcestershire Middle Severn area are closed to further consumptive abstraction as the existing levels of licensed abstraction currently exceed the long term rate of recharge.
Shropshire Middle Severn CAMS (Shrewsbury, Telford, Newport, Market Drayton, Church Stretton, Oswestry)	WRMU 4. Cound Brook	Restricted Water Available	Water is only available during periods of medium to high flows subject to a HOF condition. The HOF condition applied will state that abstraction must cease when flow in the Cound Brook falls below 46 Ml/d as measured at the Environment Agency gauging station at Boreton Bridge. A time limit of 31 March 2027 will be imposed on the licence
	WRMU 5. Rea Brook (flows into the River Severn which has 'No Water Available' Status)	Restricted Water Available	Water is only available during periods of medium to high flows subject to a HOF condition. The HOF condition applied will state that abstraction must cease when flow in the Rea Brook falls below 27 Ml/d as measured at the Environment Agency gauging station at Hookagate. A time limit of 31 March 2027 will be imposed on the licence
	WRMU 1. River Perry and associated groundwater units. WRMU 2. Tern Catchment and associated groundwater units.	Restricted Water Available	Water is only available during periods of medium to high flows subject to a HOF condition. The HOF conditions applied will state that abstraction must cease when flow in the River Perry falls below 56 Ml/d as measured at the Environment Agency gauging station at Yeaton and when flow in the River Tern falls below 427 Ml/d as measured at the Environment Agency gauging station at Walcot. A time limit of 31 March 2027 will be imposed on the licence.
	WRMU 3. Coley Brook and Aqualate GWMU. GWMU Sambrook East, Adneney & Longdon.	Restricted Water Available	Water is only available during periods of high flows subject to a HOF condition. The HOF condition applied will state that abstraction must cease when flow in the Coley Brook falls below 30 Ml/d as measured at the Environment Agency gauging station at Coley Mill. Applications may need to be assessed under the Habitats Regulations and so applicants may be obliged to provide additional support with their request. A time limit of 31 March 2027 will be imposed on the licence All GWMU are closed to further abstraction as the existing levels of licensed abstraction currently exceed the long-term rate of recharge.
Staffordshire Trent Valley CAMS (Stoke, Stone, Stafford, Cannock, Litchfield, Rugeley)	GWMU Oulton,Hardwick and Hopton GWMU Coven	Water Available	Oulton and Hardwick GWMU is open to small licence applications if applicants can confirm no impact on other abstractors, the aquatic environment and river flows. A HOF may be applicable. There are potential water quality issues. For Hopton GWMU, there are areas of poor water quality and abstractions would have to be carefully assessed due to potential for increasing subsidence. For Coven GWMU, a HOF may be applicable to protect flows in the River Penk.
	WRMU 1: The Upper Trent WRMU 2. Lower Trent and Swarbourn	Restricted Water Available	Water is only available during periods of medium to high flows due to specific HOF conditions applied to different parts of the River Trent as well as Swarbourn River. There is a time limit of 31 March 2027

	WRMU 3. Rivers Sow and Penk WRMU 5: River Blithe	No Water Available	In River Penk, water is only available during periods of high flows subject to a HOF condition of 82Ml/d at Penkridge. In River Sow, the HOF is 98Ml/d as measured at Great Bridgeford. There is a time limit of 31 March 2027 for all licences. For River Blithe, there is no water available for licensing due to over licensing and abstraction – no impact on existing licences.
	GWMU Bishops Wood GWMU Rugeley and Teddesley WRMU 4. Scotch Brook; GWMU Tittensor, Hatton, Spot and Forsbrook	No Water Available	All GWMUs are closed as all available resources have been licensed. Water may be available if you can 'buy' (known as licence trading) the entitlement to abstract water from an existing licence holder. For Scotch Brook, no new consumptive licences will be granted and there is no impact on existing licence holders. Time limited licences will be renewed subject to the fulfilment of the renewal criteria (justification of need, water efficiency and environmental sustainability.
Dove CAMS (Leek, Cheadle, Uttoxeter, Ashbourne)	WRMU 1. River Dove WRMU 2. River Churnet including tributaries	Restricted Water Available	For River Dove, water is generally available subject to specific HOF conditions applied to different river reaches. For River Churnet, water is generally unavailable, except in some places where specific HOF conditions apply.
Severn Uplands CAMS (Oswestry and Welshpool)	WRMU 1. Dulas; WRMU 2. Trannon WRMU 3. Carno; WRMU 4. Rhiw WRMU 5. Camlad; WRMU 6. Banwy WRMU 7. Cain; WRMU 9. Morda	Restricted Water Available	New licences and renewals will be evaluated in accordance with national guidance and specific criteria
	WRMU 8. Tanat WRMU 10. Weir Brook		

Warwickshire Avon CAMS (Coventry, Rugby, Warwick, Royal Leamington Spa, Stratford upon Avon, Redditch, Evesham)	River Dene (Wellesbourne) ;River Stour (Alscot Park); River Arrow (Broom); River Avon (Evesham); River Sowe (Whitley GWMU); River Avon (Kenilworth GWMU); River Stour and Isbourne and Badsey; Brook (Cotswold GWMU); River Avon (Stareton, Stratford, Upper Pound); Badsbey Brook (Offenham); Piddle Brook (Wyre Piddle); River Swilgate (Swilgate); River Sowe (Stoneleigh); River Leam and Itchen (Leamington); River Isbourne (Hinton); Avon Confined (GWMU)	Water Available	All WRMU have water available for licensing at least during medium/high flows except for River Leam which has no water available. Different HOF conditions apply for each river. There is a time limit of 31 March 2025 None of the GWMU have any water available for licensing except Coventry GWMU where restricted water is available
	Rivers Avon (upper Avon) and Swift (Rugby); Bow Brook (Besford Bridge) River Sowe (Coventry GWMU); River Avon (Warwick GWMU); Bow Brook (Bromsgrove GWMU); No River (Avon confined GWMU)	Restricted Water Available	

Severn Corridor CAMS	WRMU A. River Vyrnwy Dam to Llanymynech; WRMU B. Llanymynech to Severn confluence; WRMU 1. Clywedog Dam to Severn confluence; WRMU 2. Dolwen to Crew Green; WRMU 3. Crew Green to Buildwas; WRMU 4. Buildwas to River Worfe confluence WRMU 5. River Worfe to River Stour confluence; WRMU 6. River Stour confluence to River Teme confluence; WRMU 7. River Teme confluence to Saxons Lode; WRMU 8. Saxons Lode to Deerhurst; WRMU 9. Deerhurst to Gloucester Docks; WRMU 10. Gloucester Docks to Minsterworth; WRMU 11. Minsterwoth to Sharpness	Restricted Water Available	For all units, water is available during periods of medium/high flows subject to HOF conditions specific to each river/river reach. New licences and renewals will be subject to time limit of 31 March 2022.
Teme CAMS (Tenbury Wells, Ludlow, Knighton, Craven Arms)	Teme Water Resource Management Unit	Restricted Water Available	Water is only available during periods of medium to high flows subject to a HOF condition stating that abstraction must cease when flow in the river Teme falls below 240 Ml/d as measured at the Environment Agency gauging station at Tenbury. For licences downstream Tenbury, the HOF imposes the cessation of abstraction when flow at Tenbury is measured at 226 Ml/d. A time limit of 31 March 2025 will be imposed on the licence. The licence would obtain a presumption of renewal, subject to the renewal criteria and local considerations.

Severn Vale CAMS (Cheltenham and Gloucester)	WRMU 1: Carey's Brook and Bushley Brook; WRMU 2: River Chelt and Hatherley Brook; WRMU 3: Westbury and Lyd South West WRMU 4: Cinderford Brook; Tributaries; WRMU 5: Gloucester and Sharpness Canal Tributaries; WRMU 6: Upper Frome and Tributaries; WRMU 7: River Leedon and Red Brook WRMU 8: Glynch Brook; GWMU 20 Cotswold North and South	Restricted Water Available	Water is only available during periods of medium to high flows subject to specific HOF conditions for each river/river reach. There is a time limit of 31 March 2027 for all licences. All licences would obtain a presumption of renewal, subject to the renewal criteria and local considerations Cotswold North GWMU: Resources are available from this unit for further groundwater development. All new groundwater applications from this unit will be assessed on a case by case basis Cotswold South: Resources are available from this unit for further groundwater development. All new groundwater licences from this unit will be granted with a HOF condition of 260 Ml/d to be measured at the Ebley Mill gauging station. The condition will offer the same level of protection as the surface water HOF on the River Frome, and is required as the surface water and groundwater in this area is extremely well connected. It would therefore not be justifiable to restrict the groundwater to a lesser extent than the surface water. Further details regarding abstraction from the Frome catchment can be found within the Severn Vale Abstraction Licensing strategy.
	WRMU 9: Ell Brook and GWMU WRMU 17 Oxenhall South WRMU 19 Oxenhall North GWMU 18 Bromsberrow	Water not available	These units are closed to further abstraction as the existing levels of licensed abstraction currently exceed the long-term rate of recharge.
Wye CAMS	WRMU 1: (the Lower Wye) WRMU 8 (Upper Wye) WRMU 10 (River Lugg) WRMU 17 (Eign/Yazor Brook)	Restricted Water Available	Water is only available during periods of medium to high flows subject to specific HOF conditions for each river/river reach.

Table 4.6 Main reasons for waterbodies failing to achieve good ecological status or potential

Reason for failure	Contribution (%)
Physical modification	24%
Diffuse source agriculture	18%
Flow / abstraction	4%
Diffuse source non-agriculture	11%
Point source water industry sewage discharge intermittent	5%
Point source water industry sewage discharge continuous	15%
Point source non-water industry	6%
Suspect data	4%
Unknown reason	5%
Uncertain failure	6%
Other	3%

Table 4.7 Properties in England Wales at risk of river and sea flooding, by risk category

Region	Number of properties at risk of flooding	Number of properties at significant risk of flooding
West Midlands	~190,000	~50,000
East Midlands	~475,000	~125,000
South West	~390,000	~125,000
Wales	220,000	64,000
England	2,400,000	500,000

4.5.2 Future Baseline

Originally, the WFD set a target of aiming to achieve at least 'good status' in all water bodies by 2015. However, provided that certain conditions are satisfied, it was acknowledged that in some cases the achievement of good status may be delayed until 2021 or 2027. The primary objective in the short-term is to ensure no deterioration in status between status classes: the 2015 water body classification is the baseline from which deterioration between classes is to be assessed; no deterioration between status classes is permitted unless certain and specific conditions apply.

The NPPF[54] states that inappropriate development in areas at risk of flooding (in Flood Zone 1[55], Flood Zone 2[56], Flood Zone 3a[57] or Flood Zone 3b - the functional floodplain) should be avoided by directing development away from areas at highest risk. The NPPF requires that where development is necessary, it should be made safe without increasing flood risk elsewhere, as defined in the Technical Guidance to the NPPF[58]. The NPPF requires the application of a sequential, risk-based approach (operated through Strategic Flood Risk Assessment) to the location of development to avoid where possible flood risk to people and property and to manage any residual risk, taking account of the impacts of climate change. Following application of the Sequential Test, if it is not possible, consistent with wider sustainability objectives, for the development to be located in zones with a lower probability of flooding, the Exception Test can be applied if appropriate. This includes development for water-compatible uses (e.g. water transmission infrastructure and pumping stations) and essential infrastructure (e.g. water treatment works that need to remain operational in times of flood).

Over the next 30 years, there will be an even higher demand for water due to increases in population and development. The Environment Agency Water Strategy Regional Action Plan for Midlands Region[59] used future scenarios to look at future pressures on water resources. The scenarios considered a range of responses by Government, regulators, water companies, abstractors and individuals to the way that water is used and managed. They are not forecasts, but show a range of possible demands in the future. Under the worst case scenario, a further 1,025 Ml/d may potentially be necessary in the Severn (England) and Humber (south) River Basins by 2050 to meet the additional needs of the public, industry and agriculture. By 2050, climate change could reduce river flow by 10% to 15% on an annual average basis, and could reduce summer river flows by 50% to 80%. The Water Strategy Regional Action Plan for Midlands Region shows how the actions within the Water Resources Strategy for England and Wales will be implemented locally. The action plan identified six key priorities for Midlands Region which include:

- Increase the number of agricultural high-flow storage reservoirs in over abstracted catchments.
- Increase the number of conjunctive use schemes in Midlands Region (conjunctive use is the combined use of groundwater and surface water sources, e.g. use of groundwater when rivers flows are low).
- All abstractions in Midlands Region to be sustainable. Investigate over 100 schemes and develop cost beneficial solutions for any abstractions having an adverse impact on the environment.

The UK Climate Change Risk Assessment (CCRA) 2016 Evidence Report[60] draws together and interprets the evidence gathered by CCRA regarding current and future threats and opportunities for the UK posed by the impacts of climate change up until 2100. Findings of the assessment include:

- Increasing pressure on the UK's water resources due to changes in hydrological conditions, population growth and regulatory requirements to maintain good ecological status. Major supply-demand deficits were identified for five river basin regions including the Humber and Severn.

[54] Communities and Local Government (2012) National Planning Policy Framework
[55] Low probability of river or sea flooding (<0.1%) which has critical drainage problems
[56] Medium probability of river (1%-0.1%) or sea flooding (0.5%-0.1%)
[57] High probability of river (>1%) or sea flooding (>0.5%)
[58] Communities and Local Government (2012) Technical guidance to the National Policy Planning Framework
[59] Environment Agency (2009) Water Resources Strategy – A Regional Action Plan for Midlands Region
[60] Defra (2016) The UK Climate Change Risk Assessment 2016 Evidence Report

- Increases in water demand for irrigation of crops.
- Lower summer rivers flows across the UK due to warming and drying conditions.
- An increase in precipitation in winter months due to a combination of greater depths and more frequent heavy rainfall events - suggesting larger volumes of runoff with potential negative impacts on flood risk and sewer overflows in urban environments.
- Flash-flooding associated releases from combined sewer overflows (CSO) could in turn increase associated illnesses at the coast due to the varying occurrence of microbial pathogens in the marine environment. .

4.5.3 Key Issues

The key issues arising from the baseline assessment for water are:

- The need to further improve the quality of the regions' river and estuarine 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 improve the resilience, flexibility and sustainability of water resources in the region, particularly in light of potential climate change impacts on surface water and groundwater.
- The need to ensure sustainable abstraction to protect the water environment and meet society's needs for a resilient water supply
- The need to reduce and manage flood risk.
- The need to ensure that people understand the value of water

4.6 Soil, Geology and Land Use

4.6.1 Baseline

Geology

The assessment area is geologically diverse and includes a number of major aquifers including aquifers in the West Midlands and Nottinghamshire (e.g. Nottinghamshire Sherwood Sandstone) and smaller limestone aquifers in the Derbyshire and Cotswolds areas (Oolitic limestone of the Cotswolds).

England has been divided into areas with similar landscape character, which are called National Character Areas (NCAs), previously known as Joint Character Areas (JCAs). Character descriptions for each of the NCAs were produced and published in regional volumes to highlight the influences determining the character of the landscape, including surface geology. Landscape Character Maps for Wales include 48 regional scale landscape character areas. Each area has a distinctive sense of place that enables it to be recognised as a single area. This is described for each area, according to its geological, habitats, historic, cultural and perceptual characteristics. Relevant NCA and Welsh regional landscape character area boundaries are shown in **Figure 4.10**. A brief description of the key soil and geological characteristics of each of the main character areas is provided in **Table 4.15.**

Soils

The Soil Map of England and Wales[61] identifies dominant soil subgroups. In terms of agricultural land quality, planning policy seeks to protect best and most versatile agricultural land (defined as land in Grades 1, 2 and 3a of the Agricultural Land Classification).

In terms of agricultural land quality, planning policy seeks to protect the best and most versatile agricultural land (defined as land in Grades 1, 2 and 3a of the Agricultural Land Classification).

The majority of land in the assessment area is farmed and agricultural practices have a major influence on soil quality. Good soil structure is beneficial to water retention and crop yield. It can be seen from **Figure 4.6** that the majority of agricultural land in the assessment area is classified as Grade 3. With pockets of higher grade soils, these are more extensive to the west of the assessment area for example in Shropshire and in the north east of Nottinghamshire. The large area mainly classified as Grade 4 in the north of the assessment area is associated with the uplands of the Peak District. The large urban areas such as Birmingham can also be identified. Soil quality and structure is affected by changes in land use, groundwater levels and farming practices. Soil quality can influence run-off rates and therefore flooding and water quality.

Catchment Sensitive Farming (CSF) is a joint project between the Environment Agency and Natural England that began in 2006. It delivers practical solutions and targeted support to enable farmers and land managers to take voluntary action to reduce diffuse water pollution from agriculture to protect waterbodies and the environment. Severn Trent Water is working with farmers to implement catchment management solutions to water quality issues in the Midlands Region. Catchment investigations and management measures have been agreed with land-owners to deliver raw water quality protection improvements. Severn Trent Water's landholdings and land management within these areas can have influence over some upland catchments.

A brief description of the key land use characteristics of each of the main National Character Areas is included in **Table 4.8.**

Contaminated land is defined as land where substances could cause significant harm to people or protected species; or significant pollution of surface waters or groundwaters. Some types of contaminated land can be designated as special sites for a variety of reasons, including land that seriously affects drinking water, surface waters (e.g. lakes and rivers) and important groundwater sites. Data on contaminated land are compiled for the Government by the British Geological Survey[62].

[61] Produced by the Soil Survey of England and Wales
[62] https://data.gov.uk/dataset/contaminated-land

Minerals Safeguarding Areas (MSAs) are designated by Mineral Planning Authorities for areas that include known deposits of minerals which are desired to be kept safeguarded from unnecessary sterilisation by non-mineral development.

Figure 4.6 Agricultural Land Classification in the Assessment Area

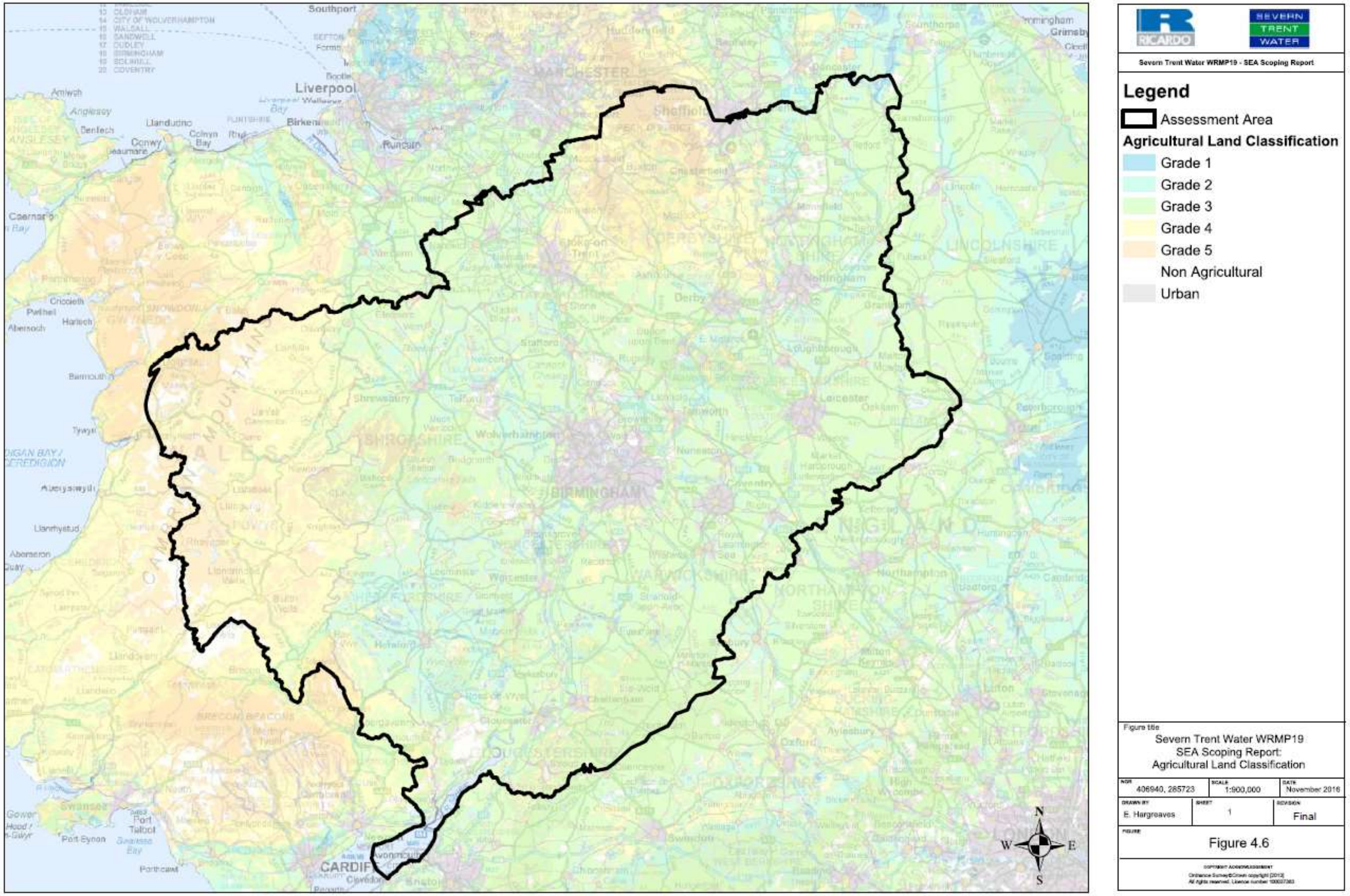


Table 4.8 Landscape Character Areas: Soil, geology and land use characteristics

Area	Characteristics
Severn and Avon Vales	Poorer wet soils and undulating landscape on the Mercia Mudstones in the Severn Valley and the heavy but fertile soils of the Lias Clay landscapes. Variety of land uses from small pasture fields and commons in the west to intensive agriculture in the east.
Dunsmore and Feldon	Mercia Mudstones and the Lower Lias clays which characterise the Arden and Feldon respectively. In Dunsmore, these formations are largely masked by glacial gravel deposits. The glacial deposits form a series of low plateaux and ridges comprising more recent lacustrine clays capped with porous and infertile gravels. The latter produced the light, sandy soils characteristic of much of the area. Farmland with large geometric fields divided by straight hedges with many hedgerow trees. Strong urban influence in some areas.
Arden	The Birmingham plateau comprises two uplifted blocks of older Palaeozoic strata. These are separated by an area of Triassic rocks, the Knowle Basin, which is mostly covered by glacial drift. The central area (Knowle Basin) is underlain by Mercia Mudstones and covered by glacial sands, gravels or till. The eastern area is a dissected plateau consisting of uplifted Carboniferous and older Palaeozoic and 'Precambrian' rocks. The southern part of the area is underlain by Mercia Mudstones, with outcrops of Arden Sandstone forming prominent escarpments. Light, sandy soils predominate in the north. Heavier clay soils and loams occur extensively in central and southern Arden. North-eastern industrial area based around former Warwickshire coalfield, with distinctive colliery settlements. North-western area dominated by urban development and associated urban edge landscapes. Away from the urban areas, the main land uses are pasture grassland and rough grazing, particularly on the thinner and more acidic soils, together with some remaining heathland on poorer soils in central and northern areas.
Mid Severn Sandstone Plateau	Former terraces of the Severn and Stour these rivers, consisting of patches of sand and gravel, overlie bedrock. Large areas are underlain by Permo-Triassic sandstones giving rise to brown sandy soil with brown earths and podzols which anciently supported heathlands. To the west, these give way to Upper Carboniferous marl, sandstone and conglomerate which support brown earth and argillic brown earth soils. To the south-east the Coal Measures of the Forest of Wyre Coalfield consist of mudstone, sandstone and thin coals. At the northern edge of the area, around Telford, similar rocks outcrop in the Coalbrookdale Coalfield.
Shropshire Hills	The Clee Hills lie on a plateau of Old Red Sandstone. These hills are formed of Carboniferous Millstone Grit and Coal Measures, capped by thick layers of dolerite or basalt. The sandstone plateau around the hills gives rise to red, silty, loam soils over silty clays. For the most part these are fertile and well-drained, supporting arable land and pasture. The hill tops have thin, stony soils supporting only rough moorland. Wenlock Edge and the dales to its side are formed from Silurian sedimentary rocks of varying hardness. The soils are very varied. The western and central uplands are formed from some of the oldest rocks in England. They include late Precambrian and succeeding Cambrian, Ordovician and Silurian formations. Areas of harsh upland environment, with bleak, rugged peaks. The soils of the higher parts of the uplands tend to be acid-brown and podsolised, well-drained and leached of nutrients. Their infertility supports only heathland and rough pasture. Lower-lying areas have gleyed soils and leached brown soils, many underlain by glacial till. These are poorly drained but potentially fertile, and support arable crops where artificially drained. More acid, sandy or brown sandy loams also occur locally.

Area	Characteristics
Shropshire, Cheshire and Staffordshire Plain	The Plain is formed from Triassic sandstones and marls but these are overlain by glacial deposits, largely consisting of boulder clay, with local deposits of silt, peat, sand and gravels. Close by are the sandstones of the Carboniferous Coal Measures which have been affected by glacial activity and have formed small-scale hummocky ridges and valleys, as around Maer. These sandstones run south-west from Newcastle towards Shrewsbury. A unified rural landscape, dominated by dairying, with strong field patterns, merging with more mixed and arable farming to the north and south-east. Extractive industries generally small scale but widespread - sand, gravel, salt, sandstone, peat.
Potteries and Churnet Valley	The core of this area are the hills, heavily dissected by the Churnet Valley, which are associated with Carboniferous and Triassic sandstones, overlain in the main with brown earth and podzols. To the north-west, towards Biddulph Moor and Mow Cop, outlying sandstone outcrops of the high Millstone Grit moors, with stagnogley and peaty soils give rise to deeply dissected moorland plateaux. Open moorland and rough grazing on higher ground. Sprawling industrial towns of the Potteries forming a major conurbation.
White Peak	The Carboniferous Limestone of the White Peak can be subdivided into three distinct types, each indicative of a different depositional environment and producing different landscapes today. The most common over much of the plateau area is the 'shelf' limestone, then, in the south-west of the area, is the 'basin' limestone and the least common is the 'reef' limestone, found within the wider basin limestone area, which is rich in fossils.
Nottinghamshire, Derbyshire and Yorkshire Coalfield	The area is underlain by Coal Measures which consist mainly of mudstone with beds of sandstone and many seams of coal. Major rivers crossing the area have carved broad valleys floored by fertile alluvial deposits and glaciation has contributed to the shaping of some valleys such as the Aire Valley near Leeds. Substantial areas of intact agricultural land in both arable and pastoral use. Ever present urban influences from major cities, smaller industrial towns and mining villages.
Trent and Belvoir Vales	Underlying most of the Trent valley are the Mercia Mudstones, with Triassic clays to the south and east. The Mercia Mudstones form the low escarpment that runs north-south from Gringley-on-the-Hill to Nottingham along the Sherwood boundary. The Vale of Belvoir is contained in the south by the low but marked Rhaetic escarpment formed of Upper Triassic limestones and shales. The Mudstones give rise to fertile red-brown soils although in places bands of harder siltstones occur which form rocky outcrops and stoney soils. Glacial activity has had an influence on the landform and soils of the area. Open, arable or mixed farmed landscape, strongly rural in feel, with trimmed hedges and few hedgerow trees; woodlands only locally significant.
Leicestershire and Nottinghamshire Wolds	The Leicestershire and Nottinghamshire Wolds are dominated by a thick layer of glacial till which, for most of the area, is underlain by the clays of the Lower Lias. At its western edge the underlying Rhaetic mudstones and limestones of the Upper Triassic form a low but steeply inclined escarpment against the Mercia Mudstones Group to the west. Prominent outliers occur at Gotham West and Leake Hills. The blanket of glacial till, and the moderately fertile soils to which it gives rise, have been a dominant influence on the development of the landscape. Exposed, open, rather bleak ridge tops, often in arable use.
High Leicestershire	The area is underlain by Lias clays of Lower Jurassic age. Much of the land is covered by thick deposits of boulder clay (glacial till). In many places, boulder clay has been eroded down to the more freely-draining and easily cultivated glacial sands and gravels. It is on these outcrops that many of the ancient villages like Kings Norton and Houghton on the Hill lie. Elsewhere, and on the Lias clays, the soils can be heavy and intractable.

Area	Characteristics
Northamptonshire and Leicestershire Vales	The western part of this large and complex area is underlain by the Mercia Mudstones. East of the river Soar, these strata are overlain by Rhaetic mudstones and limestones which do not form a significant scarp. To the east, the Lower Lias mudstones form an extensive area overlain by thick deposits of boulder clay (glacial till) which begin to thin out to the east, exposing the Middle and Upper Lias which emerge beyond Husbands Bosworth. To the east of the Northamptonshire Clay Wolds, the younger, harder rocks of the Inferior Oolite extend south-west to north-west through Northampton and Corby, juxtaposed with outcrops of the Great Oolite and Cornbrash along the Nene Valley.
Bryniau a Dyffrynnoedd Trefaldwyn/Montgomeryshire Hills and Vales	Bedrock geology is defined primarily by Silurian slates, mudstone and shales to the boundary with the Berwyn to the north, with Silurian rocks of the Wenlock and Ludlow Series to the centre of the area. Soils include well drained loams on the higher ground and seasonally wet silty soils over the shales, with deep loams overlaying the river alluvium deposits of the principal river valleys. Land use is predominantly pastoral agriculture, with lowland pasture in the river valleys and hill sheep farming on the upper valley sides and ridges.
Y Berwyn/Berwyn	Bedrock geology is predominantly Ordovician argillaceous slates and shales of the Caradoc Series in the western and central part of the area, which are contiguous with the dramatic upland spine incorporating Cadair Berwyn. Drift geology is confined to glacial deposits in the Tanat valley, although blanket peat overlays upland areas near Cadair Berwyn. Peat soils overlay the geology of much of the area, giving rise to extensive areas of upland moorland, with areas of well-drained fine loamy / silty soils associated with the pastoral valleys that dissect parts of the area. Predominant land cover is upland moorland and grassland, interspersed with areas of lower lying pasture, field boundary hedgerows and deciduous woodland associated with the river valleys such as the Tanat. Large-scale upland coniferous forest is also present.
Uwchdiroedd Cymru/Cambrian Mountains	A band of resistant Silurian grits forming a vast upland, rolling, windswept plateau of moorland hills and incised valleys at the heart of Wales. Thin soils support extensive tracts of sheep grazed grassy moorland – the smooth slopes are interspersed with bracken scrub, wind-blown oaks and angular blocks of coniferous forestry. Upland peat deposits give rise to large areas of blanket bog and pools of open water

4.6.2 Future Baseline

The vision of Defra's Soils Strategy for England[63] is for all England's soils to be managed sustainably and degradation 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.

One of the core planning principles of the NPPF is to 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. The NPPF also places great importance on Green Belt policy, the aim of which is to prevent urban sprawl by keeping land permanently undeveloped. Green Belt serves five purposes: to check the unrestricted sprawl of large built-up areas; to prevent neighbouring towns merging into one another; to assist in safeguarding the countryside from encroachment; to preserve the setting and special character of historic towns; and to assist in urban regeneration, by encouraging the recycling of derelict and other urban land.

The Water White Paper described the Government's intentions to take forward a catchment-based approach to water quality and diffuse pollution and work towards Common Agricultural Policy reforms that will promote the farming industry's role as custodian of the natural environment[64]. The Water White Paper and subsequent Defra strategic policy supports catchment-based approaches to prevent and manage future risks to drinking water quality from agricultural activities, working in partnership with farming communities. These policy objectives are reflected in regulatory guidance (including the Final Water Resources Planning Guideline) from Government and the regulators. The catchment-based approach has now been implemented across England, with catchment partnerships now in place across most of the assessment area to take forward the approach over the coming years.

Soil quality and structure is affected by changes in land use, groundwater levels and farming practices. Soil quality can influence run-off rates and therefore flooding and water quality. Severn Trent Water has been undertaking catchment management investigation work and pilot studies show where catchment solutions could offer viable alternatives to future treatment investment. As part of this work, Severn Trent Water has introduced:

- Severn Trent Water Environmental Protection Scheme (STEPS) – farmer grants of up to £5000 per farm for infrastructure investments and land management changes to protect / improve drinking water quality. Examples of such land management changes include fencing watercourses, installing riparian buffers along watercourses, pesticide biofilters, loosening compacted soil layers and constructed farm wetlands.
- Metaldehyde Schemes - support to help manage levels of metaldehyde in drinking water. Metaldehyde is the active ingredient found in most slug pellets and is difficult to remove from drinking water.

4.6.3 Key Issues

The key sustainability issues arising from the baseline assessment for soil, geology and land use are:

- The need to protect geological features of importance (including geological SSSIs) and maintain and enhance soil function and health.
- The need to manage the land more holistically at the catchment level, benefitting landowners, other stakeholders, the environment and sustainability of natural resources (including water resources).
- The need to make use of previously developed land (brownfield land) and to reduce the prevalence of derelict land in the region.

[63] Defra (2009) Safeguarding our soils – A Strategy for England
[64] Defra (2011) Water for Life - Water White Paper

4.7 Air and Climate

4.7.1 Baseline

Local Air Quality

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.

The local air quality baseline situation can be described through reference to the number of designated Air Quality Management Areas (AQMA). A local authority declares an AQMA when UK National air quality objectives are unlikely to be met. The AQMAs within the assessment area are illustrated in **Figure 4.7**. The majority of the AQMAs in the UK have been declared because of emissions from road transport.

The Defra air quality strategy[65] includes an ozone (O_3) objective to protect ecosystems, in line with the EU target value set out in the Third Daughter Directive. In April 2015, the Supreme Court ruled that the UK Government must redraft the national nitrogen dioxide (NO_2) air quality action plan, as well as 16 regional action plans, with the aim of ensuring that these areas reach compliance with legal NO_2 limits as soon as possible.

The Air Pollution Information System (www.apis.ac.uk) will be consulted during the assessment process to help understand the risks of air pollution on habitats/sensitive and or designated sites.

Greenhouse Gases and Climate Change

The predominant greenhouse gas of interest is carbon dioxide (CO_2). Severn Trent Water's greenhouse gas emissions, reported as tonnes of CO_2 equivalent per Ml of treated water and sewage treated (CO_2e/Ml), were 371 kgCO_2e/Ml and 239 kgCO_2e/Ml respectively in 2014/2015[66].

Future climate change is likely to influence processes within the hydrological cycle such as runoff and evapotranspiration. The potential impact of climate change on Severn Trent Water's WRMP water supply and demand management schemes is summarised in **Table 4.11**.

[65] Defra (2011), The Air Quality Strategy for England, Scotland and Wales
[66] Water UK (2010) Sustainability Indicators 2010-2011 Report

Figure 4.7 Air Quality Management Areas (AQMA) in the Assessment Area

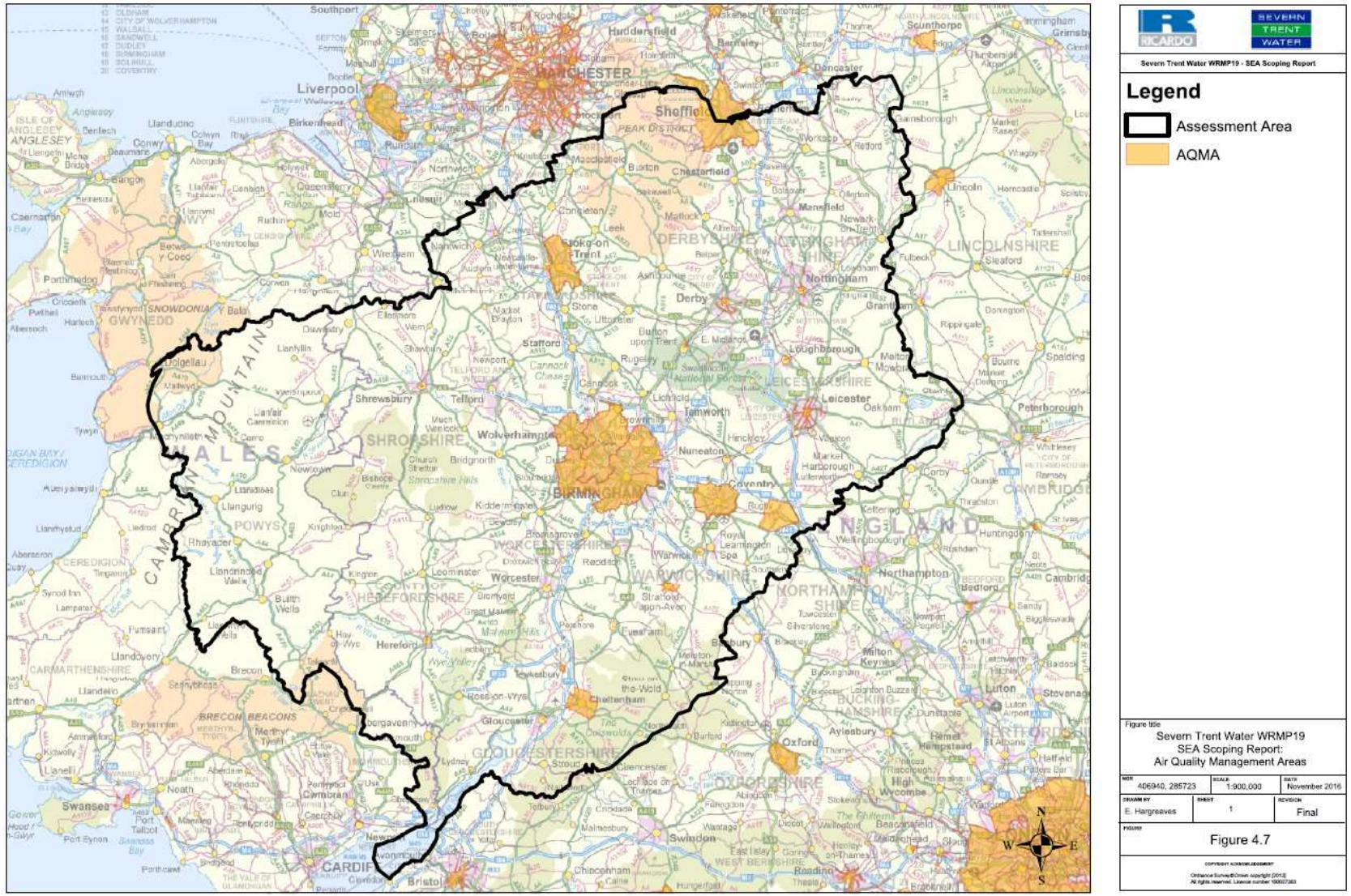


Table 4.9 Carbon Dioxide Emissions by Area (2014)[67]

Region	Total Annual CO_2 Emissions / kilotonnes	Percentage Change since 2000	Percentage Contribution by Source Sector		
			Industry & Commercial	Domestic	Road Transport
West Midlands	34.9	-7%	38%	28%	35%
East Midlands	32.7	-1%	43%	25%	31%
Wales	28.7	16%	60%	20%	21%
South West	31.6	-14%	35%	29%	36%
UK	403.8	-9%	44%	28%	31%

Table 4.10 Potential Impact of Climate Change on Water Resource and Demand Management Schemes

4.7.1.1 Sector	4.7.1.2 Impact
Water Resources	
(i) water supply	Reduction in water source yield, either in total or at certain times of the year. Increased evaporation losses from surface water stores. Increased sediment and pollution runoff into watercourses caused by changes in farm management practices adopted to adapt to climate change. Increased risk of algal blooms and pollution in reservoirs.
(ii) water demand	Increase in demands in summer months leading to increase in average and peak requirements. Increased pressure on treatment and distribution system.
Flood management	Increased riverine flood risk and storm occurrence due to increased rainfall, leading to reduction in safety standards. Improvements and higher specifications required for flood defences, urban drainage and rainwater disposal.
Water quality management	Lowered water quality in lowland rivers, with implications for in-stream ecosystems and water abstractions. Altered potential for polluting incidents. Increased potential for combined sewer overflows.
Navigation	Lower summer flows leading to reduced navigation opportunities in rivers and canals.
Aquatic ecosystems	Altered habitat potential, with species at their environmental margins most affected.
Water-based recreation	Impacts through changes in river flows and water quality.

Climate

Climate monitoring and risk assessments have improved significantly over the last two decades but there are still limits to the understanding of future climate risks. A certain amount of global warming will occur due to inertia in the global climate system, irrespective of future greenhouse gas emissions. Mitigation through reduction in greenhouse gas emissions will contribute to risk reduction over the long

[67] DECC (2016) Local Authority Carbon Dioxide Emissions Estimates 2014

term (100 years). Adaptation is needed to reduce the costs and damages of inevitable related impacts and to take advantage of opportunities that result from a changing climate.

The latest UK Climate Projections (UKCP09) estimate that summers in the East Midlands, West Midlands and Wales will be hotter and drier and the winters warmer and wetter. Table 4.9 presents the key findings of UKCP09 projections using a high emissions scenario, which represents the worst case, and the best central estimate for a summary of the projected climate change in the region, as presented in Severn Trent Water's Adaption to Climate Change Report (2015)[68].

Table 4.11 Key findings of UKCP09 projections using high emissions scenario[69]

Date	**2020**			**2050**			**2080**		
Variable	**Wales**	**West Midlands**	**East Midlands**	**Wales**	**West Midlands**	**East Midlands**	**Wales**	**West Midlands**	**East Midlands**
Summer mean temperature is likely to rise, with a change in °C of:	1.3	1.4	1.4	2.8	2.8	2.9	4.5	4.4	4.7
Summer mean precipitation is likely to decrease, with a percentage change of:	-4%	-4%	-4%	-17%	-16.6%	-17.1%	-26%	-25.1%	-25.8%
Winter mean temperature is likely to rise, with a change in °C of:	1.2	1.2	1.3	2.3	2.3	2.5	3.3	3.4	3.6
Winter mean precipitation is likely to decrease, with a percentage change of:	5%	6%	6%	13%	14%	16%	26%	23%	25%

Adaptation to Climate Change

The UK Climate Change Risk Assessment (CCRA) Evidence Report[70] draws together and interprets the evidence gathered by CCRA regarding current and future threats and opportunities for the UK posed by the impacts of climate change up until 2100. Overall, the findings of the CCRA indicate that the greatest need for early adaptation action (i.e. within the next 5 years) is in the following areas:

- Flood and coastal erosion risk management
- Specific aspects of natural ecosystems, including managing productivity and biodiversity (the management of forest pests and diseases, low summer river flows and the movement of plants and animal species are all highlighted as high priorities for action)
- Managing water resources, particularly in areas with increasing water scarcity
- Overheating of buildings and infrastructure in the urban environment
- Health risks associated with heatwaves and other risks that may affect the NHS
- Opportunities for the UK economy, particularly to develop climate adaptation products and services.

[68] STWL (2015) Adaption to Climate Change Report - A response to the Climate Change Act's Adaptation Reporting Power
[69] Defra (2012) UKCP09: http://ukclimateprojections.defra.gov.uk/content/view/2167/499/
[70] Defra (2016) The UK Climate Change Risk Assessment 2017 Evidence Report

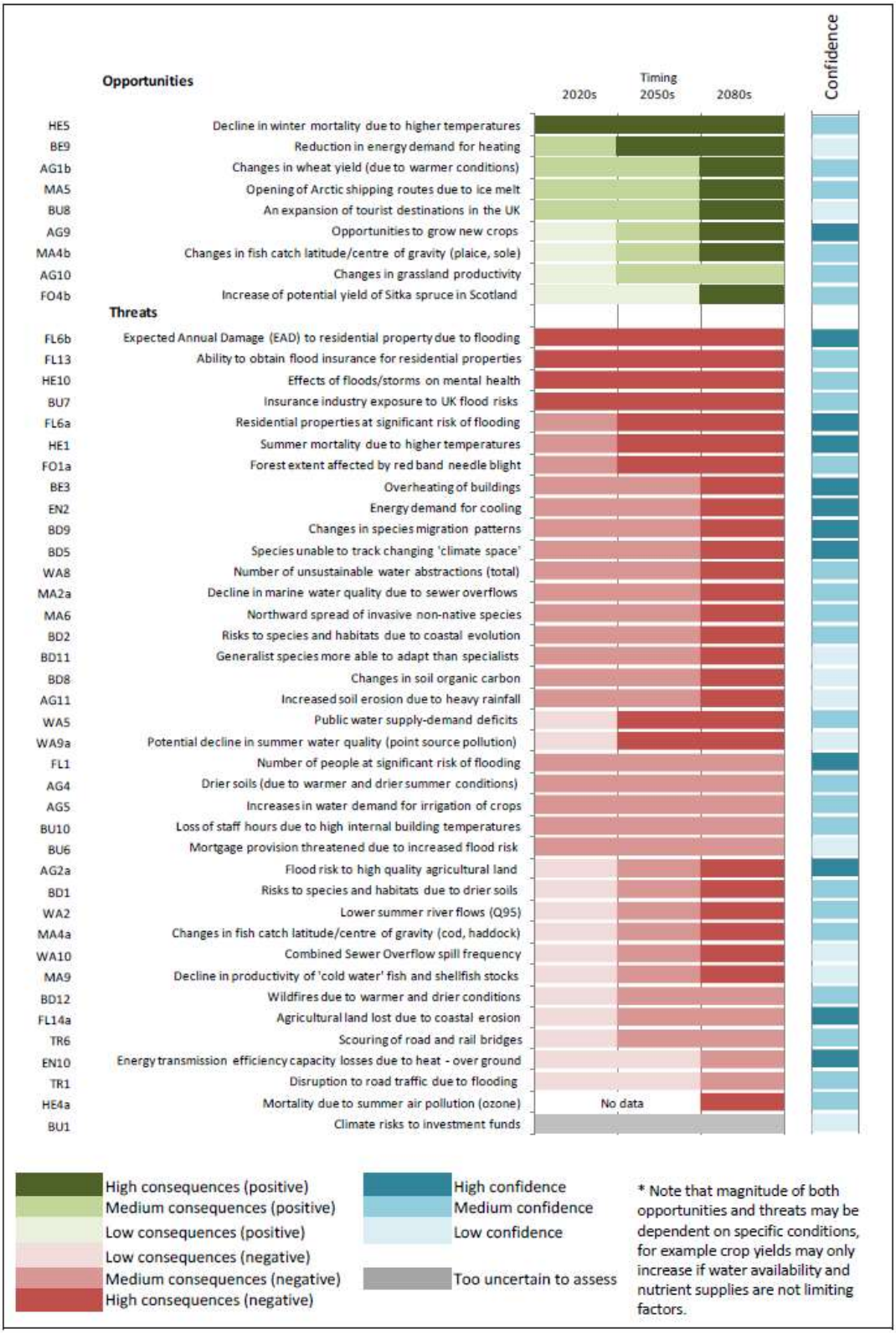
4.7.2 Future Baseline

Government and international targets, revised recently by the Paris Agreement (2016), indicate significant cuts in greenhouse gas emissions will take place by 2027. The UK is currently projected to meet its first three legislated carbon budget targets (until 2022)[71]. Objectives are being achieved for many air pollutants (lead, benzene, 1,3-butadiene and carbon monoxide (CO)). However, measurements show that long-term reducing trends for NO_2 and PM_{10} are flattening or even reversing at a number of locations, despite current policy measures.

The CCRA considered more than 700 risks associated with climate change and selected 100 risks for detailed review. A selection of threats and opportunities identified under the 'medium scenario' are summarised in **Figure 4.8**. These included public water demand-supply deficit, lower summer river flows, number of unsustainable water abstractions (total), the northward spread of invasive non-native species, increased soil erosion due to heavy rainfall and an increase in water demand for irrigation of crops.

[71] DECC (2015) Updated energy and emissions projections 2015
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/501292/eepReport2015_160205.pdf

Figure 4.8 Summary of Natural Environment Impacts with an Indication of Direction, Magnitude and Confidence (CCRA, 2016)



4.7.3 Key Issues

The key sustainability issues arising from the baseline assessment for air and climate is:

- The need to reduce air pollutant emissions (industrial processes/transport) and limit air emissions to comply with air quality standards.
- The need to reduce greenhouse gas emissions (industrial processes and transport).
- The need to mitigate against climate change through the reduction in greenhouse gas emissions in order to contribute to risk reduction over the long term.
- The need to adapt to the impacts of climate change for example through, sustainable water resource management, water use efficiencies, specific aspects of natural ecosystems (e.g. connectivity), as well as accommodating potential opportunities afforded by climate change.

4.8 Archaeology and Cultural Heritage

4.8.1 Baseline

Options in the WRMP could affect historic landscape character, heritage asset setting and historic structures associated with the water environment. Archaeological remains are sensitive to changes in water quality, water levels (for example, waterlogged deposits), pollution and land use practices.

The NPPF defines the historic environment as:

All aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and landscaped and planted or managed flora.

Nationally important archaeological sites are statutorily protected as designated heritage assets. **Table 4.12** lists the designated heritage asset count nationally, regionally and for the assessment area. **Figure 4.10** illustrates these heritage sites.

Table 4.12 Designated Heritage Assets

Asset	England	Wales	West Midlands	East Midlands	South West	SEA Assessment Area
World Heritage Sites	18	5	2	1	4	2
Scheduled Monuments	19,749	4, 200	1,423	1,512	6,984	2,699
Listed Buildings	375,121	29,952	31,481	29,631	89, 457	51,150
Registered Historic Parks and Gardens	1,610	378	150	138	294	242
Registered Historic Battlefields	43	-	6	5	8	9*
Protected Historic Wrecks	46	7	0	0	23	0

Source: English Heritage: Heritage counts 2011 (*designated assets were identified from GIS datasets available from English Heritage at http://services.english-heritage.org.uk/NMRDataDownload/)

The NCAs and the draft Welsh regional landscape character areas[72] described in Section 4.6 include consideration of historic and cultural influences on the landscape. The key historic and cultural characteristics of each NCA or Welsh regional landscape character area are included in **Table 4.13**

[72] Countryside Council for Wales (2012) Draft Regional Landscape Character Map for Wales

below. Relevant NCA and Welsh regional landscape character area boundaries are shown in **Figure 4.11**.

Table 4.13 Landscape Character Areas: Historic and cultural characteristics

Area	Characteristics
Severn and Avon Vales	There is extensive evidence of prehistoric activity in the Severn and Avon Vales. There is good evidence for the continuity of settlement from the Bronze Age through to the Anglo-Saxon period and beyond, both on the gravels and beneath modern villages. In the southern part of the area, Roman influence was particularly strong. Gloucester was a major Roman centre. Today the area is characterised by many ancient market towns and large villages along the rivers.
Dunsmore and Feldon	Historic deforestation and enclosure of most of the open heathland with a typical enclosure pattern of long, straight hedges of hawthorn and blackthorn with frequent hedgerow trees. Coventry was always the dominating settlement of the area.
Arden	North-eastern industrial area based around former Warwickshire coalfield, with distinctive colliery settlements. The 19th and 20th century expansion of Coventry has had a strong influence on the surrounding landscape. Birmingham developed in a fairly compact way from its original medieval centre and small-scale medieval industries.
Mid Severn Sandstone Plateau	Stour and Severn valleys with frequent villages and historic bridging towns. Coalfield remnant landscape along the Severn Valley. The Staffordshire and Worcestershire canal is an important man-made feature.
Shropshire Hills	There are numerous settlement sites, hillforts, barrows and field systems dating from the prehistoric period.
Shropshire, Cheshire and Staffordshire Plain	Clearance of the woodlands only began in the late Bronze Age and even then settlement was concentrated on the drier lands of the Pennine Fringe and the Sandstone Ridges. The influence of the Romans can be seen through the notable roads built to cross the Plain particularly Watling Street which linked London to mid-Wales. Chester was the most significant Roman settlement. Many of the market towns, and their churches, can be traced back to Norman times.
Potteries and Churnet Valley	Bronze Age barrows are to be seen on prominent hilltop sites. The other principal prehistoric evidence in the present landscape is the Iron Age hillfort within Alton Towers. Sprawling industrial towns of the Potteries form a major conurbation.
White Peak	Long-disused workings for limestone and ores, particularly lead rakes, provide features rich in ecological, historical and cultural interest. Features of special archaeological interest together with strong cultural heritage dating from the earliest prehistoric past.
Nottinghamshire, Derbyshire and Yorkshire Coalfield	Strong cultural identity arising from history of coal mining and other heavy industry. The landscape is rich in industrial archaeology, including features such as bell-pits, mills and goits, tips, old railways and tramways, canals and bridges. Many of the woodlands also have strong industrial links.
Trent and Belvoir Vales	The Romans established centres at Newark and Lincoln and built several roads crossing the area. These include the Great North Road which goes on to York and the Fosse Way which links Bath to Lincoln. Newark and Lincoln now represent large market towns with historic centres and substantial churches visible from afar, as do Grantham and Southwell.

Area	Characteristics
Leicestershire and Nottinghamshire Wolds	Ironstone and Lincolnshire Limestone churches. Isolated farms but few cottages and houses: an empty landscape. Fox coverts and strong associations with hunting. Deserted settlements, ridge and furrow and shrunken settlements.
High Leicestershire	Ironstone and limestone churches and vernacular buildings but also abundant brick. Frequent and very prominent ridge and furrow and many deserted settlements.
Northamptonshire and Leicestershire Vales	The river valleys were a focus of settlement from at least Neolithic times and had become extensively settled by the Bronze Age. Air photographs of the gravel terraces of the Soar, Welland and particularly the Nene have shown areas thick with Bronze Age occupation and ritual sites. Dense occupation of the valleys continued in the Roman period, with a major Roman centre at Leicester. Large towns of Leicester and Northampton continued to develop and grow over time and now dominate much of the landscape. Other historical and cultural features include prominent parks and country houses and frequent imposing, spired churches.
Bryniau a Dyffrynnoedd Trefaldwyn/Montgomeryshire Hills and Vales	Principal historic features include sites and settlements from the Roman and Medieval periods, in addition to a number of historic parklands such as Llangedwyn and Bodfach. Meifod was an important Early Christian church foundation.
Y Berwyn/Berwyn	Key elements of the historic landscape include prehistoric ritual and funerary monuments such as the cairns and round barrows, which are extensively concentrated in the most elevated areas. There is also significant evidence of prehistoric and Medieval occupation in the Berwyn moorlands and in the Tanat valley.
Uwchdiroedd Cymru/Cambrian Mountains	The mountains contain a significant scattering of prehistoric monuments, including round barrows, cairns, stone circles and standing stones, Iron Age hillforts and settlements. The fort at Cae Gaer indicates a Roman presence, while the Cistercian abbey of Strata Florida was established on the west side of the mountains in the late 12th century.

Historic England has been collecting data on buildings at risk for more than a decade. The National Heritage at Risk Register systematically checks the condition of problem buildings, initially focused on buildings at risk, but now adapted to serve other types of heritage asset. The percentage of Grade I and II* listed buildings, and structural scheduled monuments that are capable of beneficial use has reached an all-time high (45.7%). In 2016, the Risk Register counted 5,341 entries, compared to the 5,478 entries in the 2015 register, highlighting an important decline in sites at risk. The source of risk to Scheduled Monuments resulting from water abstraction or dewatering is 1.71% nationally. However, other assets such as those composed of organic material and preserved in waterlogged or anaerobic conditions are proportionately more at risk (e.g. palaeo-environmental deposits).

Approximate locations of areas important for palaeo-environmental deposits were identified according to a spreadsheet supplied by Historical England[73]. This identified that there are a number sites within the assessment area which are either known or suspected to be of high importance for water level dependent archaeology. For example, a number of sites have been identified in north Shropshire. The

[73] English Heritage (2015) National Monument Record Wetland Heritage List Data 111006

dataset supplied by Historical England, or if available an updated version, will be used to support assessment of schemes.

4.8.2 Future Baseline

The NPPF was introduced in 2012 to replace the Planning Policy Statements. The NPPF aimed to make the planning system less complex and more accessible, and changed the emphasis on planning to have a presumption in favour of development. However, core planning principles include those aiming to protect heritage assets, including "*conserve heritage assets in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life of this and future generations*"[74].

Recent and ongoing national economic difficulties may have a negative effect on removing heritage assets from the heritage at risk register. Climate change could have variable impacts on heritage assets in the future. Some types of assets and landscapes have already experienced and survived significant climatic changes in the past and may demonstrate considerable resilience in the face of future climate change. However, many more historic assets are potentially at risk from the direct impacts of future climate change[75].

4.8.3 Key Issues

The key issue arising from the baseline assessment for archaeology and cultural heritage is:

- The need to conserve or enhance sites of archaeological importance and cultural heritage interest, and their settings, particularly those which are sensitive to the water environment.

4.9 Landscape and Visual Amenity

4.9.1 Baseline

The assessment area has a rich diversity of urban and rural landscapes ranging from the mountains and uplands of the Peak District and Mid Wales to the agricultural plains of Shropshire and the Vale of Evesham, and densely populated areas of the East and West Midlands conurbations. The landscape character network[76] defines landscape character as 'a distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse'. Some landscapes are special because they have a particular amenity value, such as those designated as Areas of Outstanding Natural Beauty (AONB) or National Parks. Others may have an intrinsic value as good examples or be the only remaining examples of a particular landscape type. Some landscapes are more sensitive to development whereas others have a greater capacity to accommodate development. Assessments of landscape character and landscape sensitivity enable decisions to be made about the most suitable location of development to minimise impacts on landscapes.

Nationally Designated Sites

AONBs are defined as 'precious landscapes whose distinctive character and natural beauty are so outstanding that it is in the nation's interest to safeguard them'[77]. They are designated under National Parks and Access to the Countryside Act, 1949, strengthened by the Countryside and Rights of Way Act, 2000. The primary purpose of an AONB is 'to conserve and enhance the natural beauty of the landscape.' There are five AONBs within, or partially within, the assessment area. These are described in **Table 4.14** and shown on Figure **4.9**. The Peak District National Park covers a small area of the

[74] CLG (2012) National Planning Policy Framework, Communities and Local Government. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf
[75] English Heritage (2010) Climate Change and the Historic Environment
[76] www.landscapecharacter.org.uk, accessed 14th July 2006
[87] http://www.landscapesforlife.org.uk/

assessment area in the Stafford and East Shropshire WRZ whilst the Shelton WRZ and Llandinam and Llanwrin WRZ border the Snowdonia (Eryri) National Park (**see Figure 4.9**).

Table 4.14 National Parks and AONBs within the Assessment Area

4.9.1.1 Name of Site	4.9.1.2 Key Characteristics
Cannock Chase AONB	Elevated plateau of Triassic sandstones and pebble beds. The largest surviving area of lowland heathland in the Midlands. Surrounded by large villages, collieries and historic parkland. Much of the heathland area presents an unspoilt almost semi-wilderness character, standing in contrast to the surrounding developments.
Cotswolds AONB	Jurassic limestone creating distinctive character. Nationally important for limestone grassland and ancient beechwood. Recreation resource – includes the Cotwolds National Trail.
Malvern Hills AONB	Very hard igneous and metamorphic rocks form the high ground of the Malvern Hills ridge. Silurian rocks, formed in a marine environment, underpin the ridge and vale scenery. Extensive areas of acid grassland and heath on the hilltops. Mixed broadleaved woodland often of ancient origin on the lower hills and valleys in the north and west. Recreation resource - established trails and routes, such as the Elgar route, the Cider Trail. Opportunities to engage in a wide range of recreational activities.
Shropshire Hills AONB	Greatest geological variety of any comparable sized area in the UK. Landscape character is one of variety and of transition – between the lowland plains of the English Midlands and the uplands of Wales, and between north and south of Britain. Off the beaten track and tranquil, with walking and activities of all levels, and for relaxation and inspiration.
Wye Valley AONB	Silurian limestones, plateaux of Old Red Sandstone. Dramatic limestone gorge and some of the most outstanding native woodlands to be found in Britain. Recreation resource - footpaths providing for access to beauty spots and more demanding walks. Water sports, rock climbing, abseiling and caving.
Peak District National Park	Limestone plateau (White Peak) and high gritstone moorland (Dark Peak). The White Peak limestone plateaux is dissected by deeply cut dales and gorges, with flower-rich grasslands of international importance. The White Peak is home to most of the Peak District's 38,000 residents, living in a thriving network of small settlements and farmed land. The South West Peak features mixed moorland and grassland landscapes with rock outcrops. Recreation resource - diverse range of activities such as walking, cycling, fell running, horse riding, climbing, caving, fishing or air sports. The Peak District's unique position at the heart of the country means that around 16 million people live within one hour's travel time of the national park.

Landscape Character

The visual landscape characteristics of the relevant NCA and Welsh regional landscape character areas (shown again in **Figure 4.9** for reference) area are included in **Table 4.15** below.

Table 4.15 Landscape Character Areas: Landscape characteristics

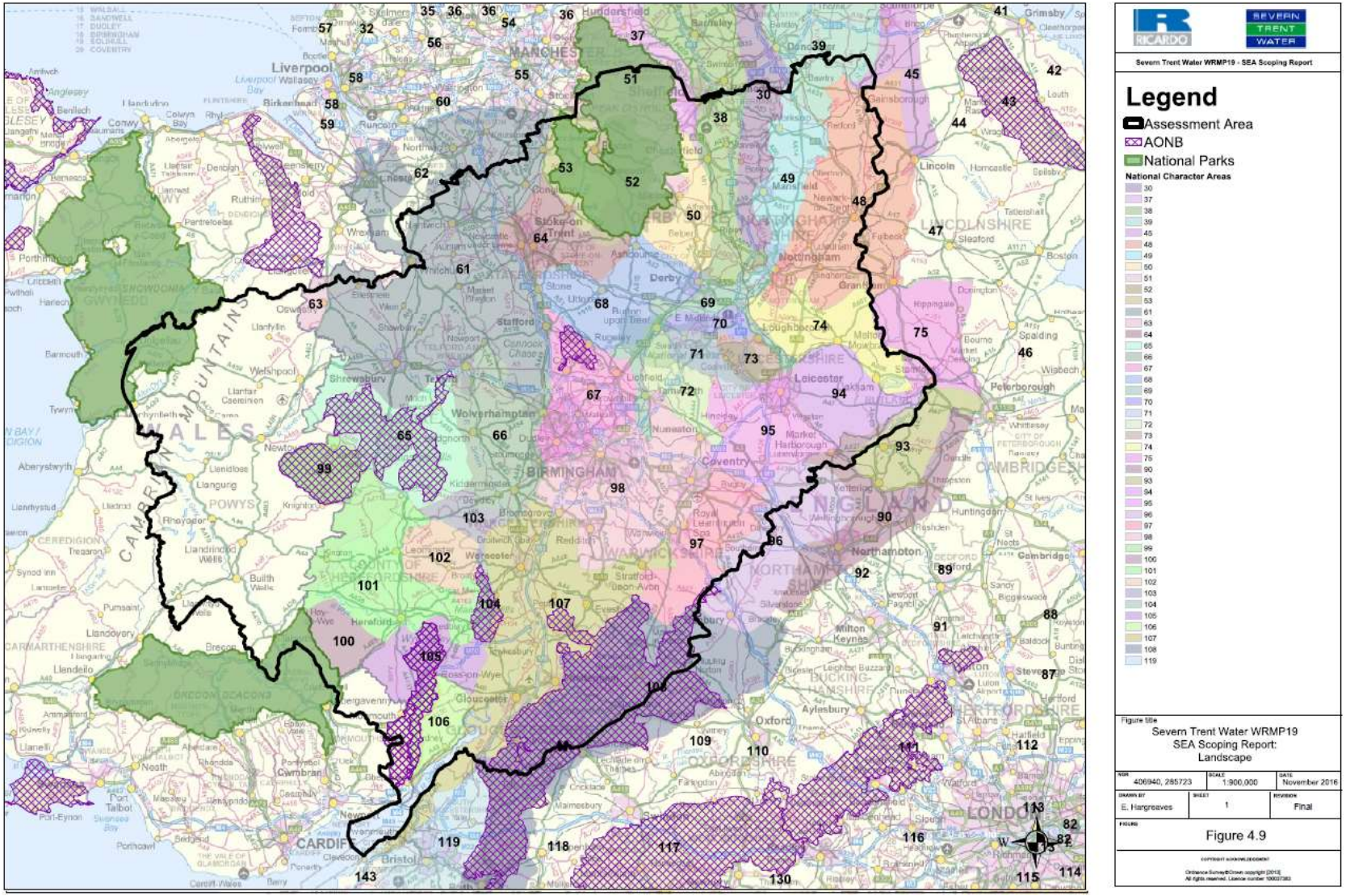
Area	Landscape Characteristics
Severn and Avon Vales	Diverse range of flat and gently undulating landscapes, united by broad river valley character. Riverside landscapes with little woodland, often very open. Many ancient market towns and large villages along the rivers. Prominent views of hills – such as the Cotswolds, Bredon and the Malverns – at the edges of the character area.
Dunsmore and Feldon	Farmland with large geometric fields divided by straight hedges with many hedgerow trees. Generally well-wooded appearance but also extensive open arable farmland. Heathland character still evident in woodland clearings and roadsides. Plateau landscape of open, flat, rather empty character, with long views. Large ancient woodlands of high nature-conservation value in the west. Strong urban influence in some areas.
Arden	Well-wooded farmland landscape with rolling landform. Ancient landscape pattern of small fields, winding lanes and dispersed, isolated hamlets. Numerous areas of former wood-pasture with large, old, oak trees, often associated with heathland remnants. Narrow, meandering river valleys with long river meadows. North-western area dominated by urban development and associated urban edge landscapes.
Mid Severn Sandstone Plateau	Rolling landform with open, arable cultivation dominating an often weak hedgerow pattern. Prominent urban fringes. Contrasting areas of smaller fields, and mixed field pattern with more distinctive hedgerows in west. Parklands and estate conifer and deciduous woodlands. Extensive mixed woodland together with scattered mining and forest edge housing forming distinctive Wyre Forest landscape. Stour and Severn valleys with frequent villages and historic bridging towns. Narrow, steep-sided wooded dingles found throughout the area. Steep, wooded gorges of the Severn Valley. Coalfield remnant landscape along the Severn Valley. The Staffordshire and Worcestershire canal - an important man-made feature. New town landscape of Telford.
Shropshire Hills	Dominant pattern of south-west to north-east ridges, scarps and intervening valleys. Steep, rounded 'whaleback' hills. Hilltops often crowned with open moorland, with woodland on steeper slopes. Hill slopes with patchworks of small pasture fields, giving way to arable lands in the dales. Distinctive and prominent landmarks, such as Long Mynd, Wenlock Edge, the Wrekin and Clee peaks. Scattered farms in dales and sheltering in valleys. Larger settlements confined to the Stretton Valley and the A49 corridor. Small fields and cottages of squatter settlements in some areas.
Shropshire, Cheshire and Staffordshire Plain	Extensive gently rolling plain, interrupted by sandstone ridges. A unified rural landscape, dominated by dairying, with strong field patterns, merging with more mixed and arable farming to the north and south-east. Mosses, meres and small field ponds are scattered throughout. Large farmsteads regularly spaced throughout, with dispersed hamlets, and few market towns. Buildings are predominantly red brick, with warm sandstone churches and, in the national parks occasional very distinctive black and white half-timbered buildings.

Area	Landscape Characteristics
Potteries and Churnet Valley	Strongly dissected hills and small plateaux, rising up to the Pennines and cut by major river valleys. Strong contrast between remote uplands, urban areas, sheltered wooded valleys and hillside pastures. Sprawling industrial towns of the Potteries forming a major conurbation. Extensive former industrial and extractive sites, many now reclaimed, intermixed with settlements and open land. Rural settlement pattern of sheltered villages on low ground with hamlets, scattered farmsteads and cottages elsewhere.
White Peak	Elevated limestone plateau dissected by steeply cut dales and gorges with rock outcrops. Broad leaved woodlands along dale sides. Clear, fast-flowing rivers and streams. Nucleated villages and small towns connected by crest and valley roads. Lack of a unifying style of architecture for buildings and settlements due to the availability of two dissimilar rock types, limestone and 'gritstone' used either singly or in combination in various parts of the area. Large-scale limestone quarries creating major scars in limited places in an otherwise attractive landscape. Features of special archaeological interest together with strong cultural heritage dating from the earliest prehistoric past.
Nottinghamshire, Derbyshire and Yorkshire Coalfield	Widespread evidence of industrial activity including mine buildings, former spoil tips, and iron and steel plants. Many areas affected by urban fringe pressures creating fragmented and downgraded landscapes. Small, fragmented remnants of pre-industrial landscape and semi-natural vegetation, including many areas of woodland, river valley habitats, subsidence flashes and other relict habitats. Widespread influence of transport routes, including canal, road (M1, M62) and rail, with ribbon developments emphasising the urban influence in the landscape. Rolling landforms with hills, escarpments and broad valleys. Local variation in landscape character reflecting variations in underlying geology. Strong cultural identity arising from history of coal mining and other heavy industry.
Trent and Belvoir Vales	Gently undulating landform, with shallow ridges dropping down gently to broad river valleys. Frequent nucleated villages with red brick houses, roofed with pantiles, and spired churches prominent in long views. Large market towns with historic centres and substantial churches visible from afar, notably Newark, Grantham, Southwell, Lincoln. Subtle variations within the area from the remote and pastoral landscape of the Vale of Belvoir, to the more undulating and wooded farmland north-east of Nottingham and the open arable lands to the north and east. Urban development closely confined to major centres, in particular the outskirts of Nottingham. Elsewhere the open, undeveloped and rural character strongly influenced locally by power stations, pylons and sand and gravel extraction on the Trent floodplain.
Leicestershire and Nottinghamshire Wolds	Rolling, glacial till ridges with small narrow valleys. Exposed, open, rather bleak ridge tops, often in arable use. Sheltered valleys and lower slopes with pasture and frequent hedge cover. Scattered small villages of red brick and pantiles. Ironstone and Lincolnshire Limestone churches. Isolated farms but few cottages and houses: an empty landscape. Deserted settlements, ridge and furrow and shrunken settlements. Prominent and wooded northern and western scarps. Many, deeply rural, remote areas with long, straight enclosure roads, wide verges and narrow sunken lanes. Major inland reservoir at Rutland Water.

Area	Landscape Characteristics
High Leicestershire	Broad rolling ridges and varied, often steep-sided, valleys. Well-treed character from hedgerows, hedgerow trees, copses, spinneys and small woodlands, the last often sited on ridges. Mixed farming, but with arable mainly on the ridge tops and the wide valley bottoms. Sparse settlement of small villages with little modern development. Ironstone and limestone churches and vernacular buildings but also abundant brick. Frequent and very prominent ridge and furrow and many deserted settlements. Green lanes, quiet country and a remote, rural, often empty character.
Northamptonshire and Leicestershire Vales	Gentle clay ridges and valleys with little woodland and strong patterns of Tudor and parliamentary enclosure. Distinctive river valleys of Soar, Welland and Nene with flat floodplains and gravel terraces. Large towns of Leicester and Northampton dominate much of the landscape. Frequent small towns and large villages, often characterised by red brick buildings. Prominent parks and country houses. Frequent imposing, spired churches. Attractive stone buildings in older village centres and eastern towns and villages. Great diversity of landscape and settlement pattern with many sub units, e.g. Nene Valley and Welland Valley.
Bryniau a Dyffrynnoedd Trefaldwyn/Montgomeryshire Hills and Vales	A mix of hills and valleys with both lowland and upland features, generally quiet and rural. Topography is that of a distinctly undulating series of ridges and valleys, which are aligned broadly east to west. Ridges and scarp slopes create sinuous, curved skylines. A network of hedgerows with hedgerow trees defines the field boundaries, interspersed with blocks of deciduous woodland of irregular or organic form, in addition to plantation woodland. A number of the steep sided valleys are wooded, with the woodlands supporting diverse floral communities and wet mosses, for example, at Coed Cepi'r Graig. Principal historic features include sites and settlements from the Roman and Medieval periods, in addition to a number of historic parklands such as Llangedwyn and Bodfach. Settlement is confined to isolated farmsteads and compact nucleated valley villages associated primarily with historic river crossing points. A patchwork landscape of pastoral fields and woodland, with an intimate spatial character created by the distinctive combination of vegetation and the undulating ridge and valley land form.
Y Berwyn/Berwyn	An extensive open, unenclosed, rolling upland landscape with a series of deeply incised 'V' or 'U' shaped river valleys. Much of Berwyn has a remote and unsettled character, with the few focii of settlement found in compact, linear valley villages such as Llangynog, served by a network of winding B class and minor roads. The plantation surrounded Vyrnwy reservoir is a notable landscape feature, providing localised variation in what is predominantly an open and elevated moorland landscape. Key elements of the historic landscape include prehistoric ritual and funerary monuments such as the cairns and round barrows, which are extensively concentrated in the most elevated areas. There is also significant evidence of prehistoric and Medieval occupation in the Berwyn moorlands and in the Tanat valley.

Area	Landscape Characteristics
Uwchdiroedd Cymru/Cambrian Mountains	Vast upland, rolling, windswept plateau of moorland hills and incised valleys at the heart of Wales. Glaciation gouged deeply dissected U-shaped valleys into the plateau, as well as corries (cymoedd), lakes and moraines. Emerald green valleys on the edges of the moorland, with their distinctive pattern of hedgerow enclosures, contain lush pastures for stock grazing, and woodland. The major reservoirs and dams of Nant-y-Moch, Llyn Clywedog, Craig Goch, Penygarreg, Garreg-ddu, Claerwen and Llyn Brianne are features of the valleys, contributing to the landscape's man-made features. The mountains contain a significant scattering of prehistoric monuments, including round barrows, cairns, stone circles and standing stones, Iron Age hillforts and settlements. Settlement is largely absent, being confined to the lower hillsides and valleys, however, a large number of deserted settlements indicate that settlement was once more widespread than today. Screes and cliffs, gritstone outcrops, stony summits, bracken scrub and wind-blown oaks provide texture in the landscape. Panoramic views from high summits over the moorlands and adjacent lowlands are a feature of the hills. The mountains engender a sense of remoteness because of their dark night-time skies, low population density, relative inaccessibility, the impression of naturalness they impart and the relative lack of visible, built influences.

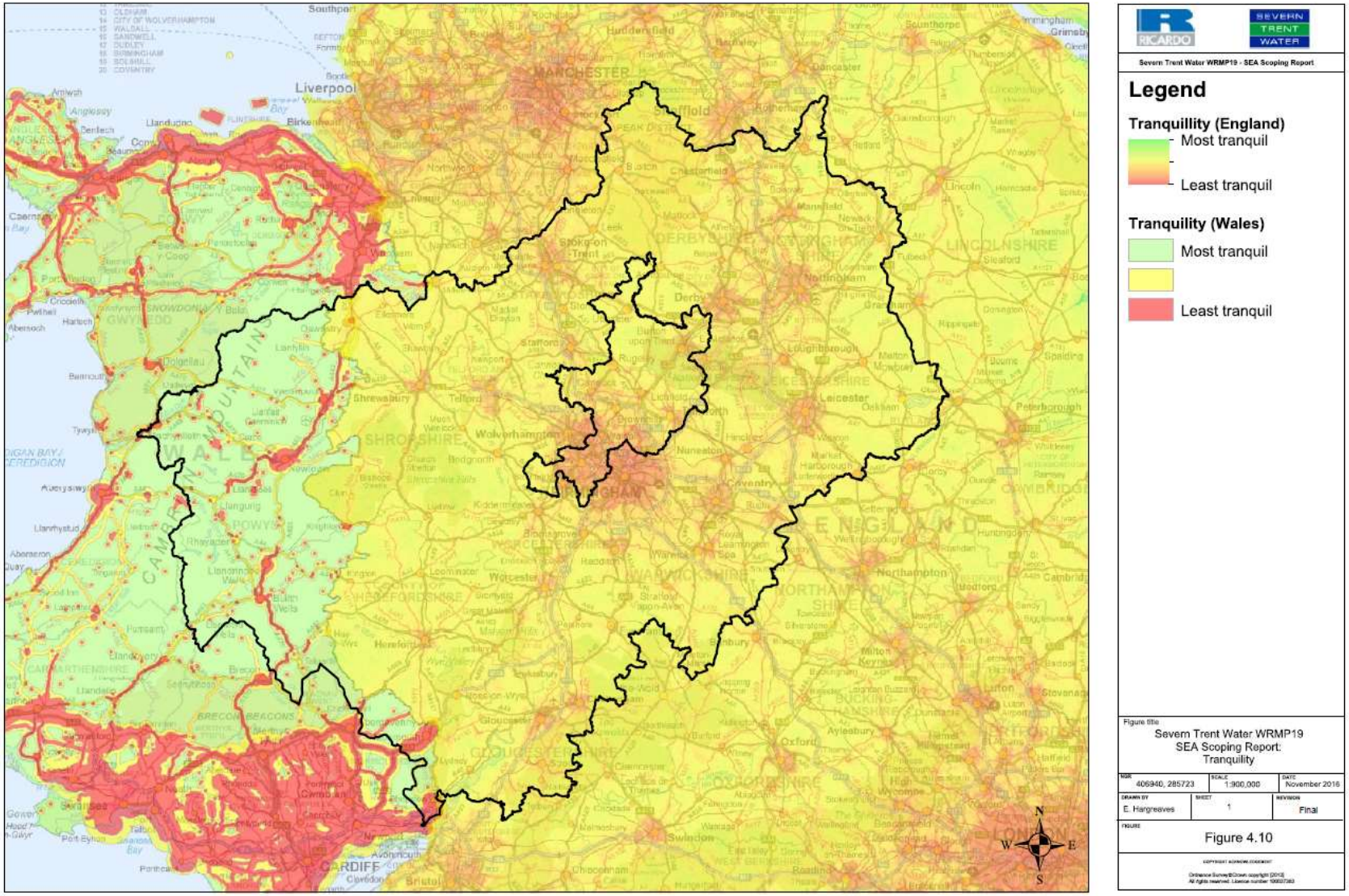
Figure 4.9 Landscape Character in the Severn Trent Water Assessment Area



Tranquillity is also considered to be a highly valued element with respect to the experience and enjoyment of the countryside. The Campaign for the Protection of Rural England (CPRE) has undertaken studies on tranquillity levels in England using a rigorous set of indicators predominantly falling into two categories; seeing (e.g. naturalness, openness and visibility at night) and hearing indicators (e.g. level and attenuation of constant noise/occasional noise and feature specific noise - lapping water, running water, the sea, high altitude aircraft) both with numerous positive and negative attributes. The studies and data sets were modelled using Geographical Information Systems (GIS) to produce a tranquillity map for England[78]. The tranquillity map presents a national tranquillity score or a relative scale for each 500m x 500m grid square in England at a snapshot time in 2016. **Figure 4.10** shows tranquillity mapping for the English parts of the assessment area.

[78] CPRE (2008) Tranquillity Mapping - Short report on the methodology

Figure 4.10 Tranquillity Mapping in the Assessment Area



4.9.2 Future Baseline

One of the core planning principles of the NPPF is to take account of the different roles and character of areas, promoting the vitality of our main urban areas, protecting the Green Belts around them, recognising the intrinsic character and beauty of the countryside and supporting thriving rural communities within it. The NPPF states that great weight should be given to conserving landscape and scenic beauty in National Parks and AONBs, which have the highest status of protection in relation to landscape and scenic beauty. The NPPF identifies that planning permission should be refused for major developments in these designated areas except in exceptional circumstances and where it can be demonstrated they are in the public interest. Climate change and land use change (e.g. due to agricultural reform associated with the UK's exit from the EU and Common Agricultural Policy) may also, in the longer term, lead to changes to landscape character.

4.9.3 Key Issues

The key sustainability issue arising from the baseline assessment for landscape and visual amenity is:

- The need to protect and improve the natural beauty of the region's AONBs, National Parks and other areas of natural beauty.
- The need to protect and improve the character of landscapes and townscapes.

4.10 Inter-relationships between SEA topics

It is noted that there are inter-relationships between SEA topics. Inter-relationships that result in changes to individual effects are considered through the assessment of synergistic effects.

4.11 Summary of Key Issues

A summary of the key issues identified by the policies, plans and programmes review (Section 3.2) and the baseline data review (Section Sections 4.3 to 4.9) is presented in **Table 4.16**. These key issues have been used to develop the draft SEA objectives in Section 5

Table 4.16 Summary of the key sustainability issues identified for the SEA

Topics	The key sustainability issues arising from the review of the PPP and baseline
Biodiversity, flora and fauna	PPP Review • Conservation and enhancement of the natural environment and of biodiversity, particularly internationally and nationally designated sites, whilst taking into account future climate change and ability to adapt. • Promote a catchment-wide approach to water management to ensure better protection of biodiversity. • To achieve favourable condition for priority habitats and species. • Avoidance of activities likely to cause irreversible damage to nature conservation and natural heritage. • Ensure maintenance and/or support provision of fish passage for migratory fish. • Support well-functioning ecosystems, respect environmental limits and capacities, and maintain/enhance coherent ecological networks, including provision for fish passage and connectivity for migratory/mobile species. • Strengthen the connections between people and nature and realise the value of biodiversity. • Protection, conservation and enhancement of natural capital. Ecosystem services from natural capital contributes to the economy and therefore should be protected and, where possible, enhanced. • Avoidance of activities likely to cause the spread of Invasive Non-Native Species (INNS).

	• A need to protect the green infrastructure network. Baseline: • The need to protect or enhance the region's biodiversity, particularly protected sites designated for nature conservation. • 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 recognise the importance of allowing wildlife to adapt to climate change. • The need to control the spread of Invasive Non-Native Species (INNS). • The need to engage more people in biodiversity issues so that they personally value biodiversity and know what they can do to help, including through recognising the value of ecosystem services.
Population and Human Health	PPP Review: • Water resources play an important role in supporting the health and recreational needs of local communities. • To provide a clean, healthy environment that benefits both people and the economy. • To ensure secure, safe, reliable, dependable, sustainable and affordable supplies of water are provided for all communities and all business sectors. • Access to high quality open spaces and opportunities for sport and recreation can make an important contribution to the health and well-being of communities. • Promotion of well-being and healthy communities and protection from risks to these. • Promotion of a sustainable economy supported by universal access to essential utility and infrastructure services. • Protection and improvement of drinking water quality. • A need to protect the green infrastructure network. Baseline: • The need to ensure water supplies remain affordable especially for deprived or vulnerable communities. • The need to ensure continued improvements in levels of health across the region, particularly in urban areas and deprived areas. • The need to ensure safe, resilient and reliable provision of water and sewerage services to maintain health and wellbeing of the population. • 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, including opportunities for access to, protecting and enhancing recreation resources, green infrastructure and the natural and historic environment. • The need to accommodate an increasing population. • 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 well-being and the economy.
Material Asset and Resource Use	PPP Review: • Promote sustainable management of natural resources, sustainable production and consumption whilst seeking to reduce the amount of waste generated by using materials, energy and water more efficiently. • Consider issues of water demand, water supply and water quality in the natural environment and ensure a sustainable use of water resources. Government expects water companies to continue reducing overall demand for water particularly in areas designated

	as water stressed, or where demand is above the national average. • Contribute to a resource efficient, green and competitive low carbon economy. • Maintain a resilient, reliable public water supply and ensure there is enough water for human uses, as well as providing an improved water environment. • Minimise the production of waste, maximise resource benefits from waste and ensure waste management is in line with the 'waste hierarchy'; eliminate waste sent to landfill. • Promote the sustainable management of natural resources. Baseline: • The need to minimise the consumption of resources, including water and energy. • The need to reduce the total amount of waste produced in the region, from all sources. The need to recognise waste as a potential resource and reuse waste productively where possible to support development of the circular economy. • The need to reduce the proportion of waste sent to landfill. • The need to continue to actively control leakage from the water supply system to help reduce demand for water. • The need to encourage the efficient use of water.
Water	PPP review: • Promote sustainable water resource management, including a reduction in water consumption, to meet society's needs and offer opportunities for green growth whilst protecting and enhancing the natural environment. • Maintain and improve water quality (surface water, groundwater and bathing waters). • Expanding the scope of water quality protection measures to all waters, surface waters and groundwater. • Improve the quality of the water environment and the ecology which it supports, and continue to provide high levels of drinking water quality. • Ensure appropriate management of abstractions and protect flow and level variability across the full range of regimes from low to high conditions. • Prevent deterioration of WFD waterbody status and contribute to achievement of WFD Good Status. • Minimise impacts on WFD RBMP objectives. • Develop a resilient and flexible water management approach to cope with changing climate, population and economic conditions. • Balance the abstraction of water for supply with the other functions and services the water environment performs or provides. • Steer new development to areas with the lowest probability of flooding and manage any residual flood risk, taking account of the impacts of climate change. • Promote measures to enable and sustain long-term improvement in water efficiency. • Ensure a sustainable balance between the supply and demand for water. • Reduce flood risk to people, residential and commercial properties, community facilities and key infrastructure, designated environmental features, heritage assets and landscapes of value. • Reduce risk of flooding from reservoirs. Baseline: • The need to further improve the quality of the regions' river and estuarine 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 improve the resilience, flexibility and sustainability of

	water resources in the region, particularly in light of potential climate change impacts on surface water and groundwater. • The need to ensure sustainable abstraction to protect the water environment and meet society's needs for a resilient water supply • The need to reduce and manage flood risk. • The need to ensure that people understand the value of water.
Soil, Geology and Land Use	PPP Review: • Protect and enhance the quality and diversity of geology (including geological SSSIs) and soils including geomorphology and geomorphological processes which can be lost or damaged by insensitive development. • Ensure that soils will be protected and managed to optimise the varied ecosystem service functions that soils perform for society (e.g. supporting agriculture and forestry, protecting cultural heritage, carbon sequestration, supporting biodiversity, as a platform for construction), in keeping with the principles of sustainable development. • Promote catchment-wide approach to land management by relevant stakeholders, in order to benefit natural resources, reduce pollution and develop resilience to climate change. • Promote mixed use developments, and encourage multiple benefits from the use of land in urban and rural areas, recognising that some open land can perform many functions. • 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. • Conservation and enhancement of geological SSSIs. Baseline: • The need to protect geological features of importance (including geological SSSIs) and maintain and enhance soil function and health. • The need to manage the land more holistically at the catchment level, benefitting landowners, other stakeholders, the environment and sustainability of natural resources (including water resources). • The need to make use of previously developed land (brownfield land) and to reduce the prevalence of derelict land in the region.
Air and Climate	PPP Review: • Reduce greenhouse gas emissions and meet targets set by international agreements, national and local governments. Targets include the reduction of the UK's greenhouse gas emissions by at least 80% (relative to 1990 levels) by 2050. • Reduce the effects of air pollution on ecosystems. • Improve overall air quality. • Sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. • Minimise energy consumption, support the use of sustainable/renewable energy and improve resilience to climate change. • Build in adaption to climate change to future planning and consider the level of urgency of associated risks of climate change impacts accordingly. • Need for adaptive measures to respond to likely climate change impacts on water supply and demand. Baseline: • The need to reduce air pollutant emissions (industrial processes/transport) and limit air emissions to comply with air quality standards. • The need to reduce greenhouse gas emissions (industrial processes and transport).

	• The need to mitigate against climate change through the reduction in greenhouse gas emissions in order to contribute to risk reduction over the long term. • The need to adapt to the impacts of climate change for example through, sustainable water resource management, specific aspects of natural ecosystems (e.g. connectivity) as well as accommodating potential opportunities afforded by climate change.
Archaeology and Cultural Heritage	PPP review: • Built development in the vicinity of historic buildings and Scheduled Monuments could have implications for the setting and/or built fabric and cause damage to any archaeological deposits present on site. • Ensure active management of the Region's environmental and cultural assets. • Promote the conservation and enhancement of the historic environment, including the promotion of heritage and landscape as central to the culture of the region and conserve and enhance distinctive characteristics of landscape and settlements. • Conserve and enhance the historic environment, heritage assets and their settings. • Protect, enhance and manage the character and appearance of historic and cultural assets and their settings including maintaining and strengthening local distinctiveness and sense of place. • Ensure effects resulting from changes to water level (surface or sub-surface) on all water dependent historical and cultural assets are avoided. Consider effects on important wetland areas with potential for paleo-environmental deposits. Baseline: • The need to conserve or enhance sites of archaeological importance and cultural heritage interest, and their settings, particularly those which are sensitive to the water environment.
Landscape and Visual Amenity	PPP Review: • Protection and enhancement of landscape (including designated landscapes, landscape character, distinctiveness and the countryside). • Abstraction and low river flows could negatively affect landscape and visual amenity. • Enhance the value of the countryside by protecting the natural environment for this and future generations. • Improve access to valued areas of landscape character in sustainable ways to enhance its enjoyment and value by visitors and stakeholders. Baseline: • The need to protect and improve the natural beauty of AONBs, National Parks and other designated landscapes and other areas of natural beauty. • The need to protect and improve the character of landscapes and townscapes.

5 Draft SEA Objectives and Proposed Assessment Framework

5.1 Draft SEA Objectives and Proposed Assessment Framework

This section outlines the draft SEA objectives and proposed assessment framework that will be used to identify the environmental and social effects of the options identified in Severn Trent Water's WRMP.

The effects assessment of the options will be 'objectives-led': establishing assessment objectives is a recognised way of considering the environmental and social effects of a plan and comparing the effects of alternatives. SEA objectives are often derived from environmental and social objectives established in law, policy or other plans and programmes, or from a review of baseline information and environmental problems based on the SEA topics.

Assessment objectives have been developed based on:

- The key policy messages, social and environmental protection objectives identified in the review of policies, other plans and programmes (see Section 3.2). It is important that the assessment takes these objectives into account as this will help it to highlight any area where the WRMP may help or hinder the achievement of the objectives of other plans (e.g. at local, national and international level).
- The current state of the environment in the area under consideration for the SEA (see Section 4.1) and the key environmental issues identified (see Section 4.2 and summarised in **Table 4.7**).

Draft SEA objectives are set out in Table 5.1 alongside the key messages identified from the review of policies, plans and programmes and the key issues highlighted from the review of baseline information. The following sections describe how Severn Trent Water will use these SEA objectives in the assessment of the environmental effects of the options, programmes and the WRMP. These SEA objectives are intended to reflect changes that contribute to sustainability. By assessing each option against the objectives, it is more apparent where there might be adverse effects and where options could be developed to provide beneficial effects.

As well as the overall SEA objectives, a number of key questions have been developed for each SEA topic. These key questions will prompt the assessment and ensure it considers all the relevant aspects. The assessment of each option, programme and WRMP will require the following information:

- Details of the options involved: main components, location and/or population affected;
- Likelihood of deployment;
- Construction (where applicable) and operational implementation;
- Amount of water provided or volume of water saved (taking uncertainty into account); and
- Key elements of the baseline and future baseline environment, such as location of designated sites, local air quality, flood risk areas.

Table 5.1 SEA objectives and assessment approach

SEA topic	Policies, plans and programmes - key messages relevant to the WRMP	Baseline - key issues relevant to WRMP	SEA objective	Key indicator questions
Biodiversity, fauna and flora	Conservation and enhancement of the natural environment and of biodiversity, particularly internationally and nationally designated sites, whilst taking into account future climate change and ability to adapt. Promote a catchment-wide approach to water management to ensure better protection of biodiversity. To achieve favourable condition for priority habitats and species. Avoidance of activities likely to cause irreversible damage to nature conservation and natural heritage. Ensure maintenance and/or support provision of fish passage for migratory fish. Support well-functioning ecosystems, respect environmental limits and capacities, and maintain/enhance coherent ecological networks, including provision for fish passage and connectivity for migratory/mobile species.	The need to protect or enhance the region's biodiversity, particularly protected sites designated for nature conservation. 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 recognise the importance of allowing wildlife to adapt to climate change. The need to control the spread of Invasive Non-Native Species (INNS). The need to engage more people in biodiversity issues so that they personally value biodiversity and know what they can do to help, including through recognising the value of ecosystem services.	1.1 To conserve and enhance biodiversity, including designated sites of nature conservation interest and protected habitats and species (with particular regard to avoiding the effects of over-abstraction on sensitive sites, habitats and species). 1.2 To protect, conserve and enhance natural capital and the ecosystem services from natural capital that contribute to the economy. 1.3 To strengthen the connections between people and nature and realise the value of biodiversity and ecosystem services.	• Will it protect and enhance the most important sites for nature conservation? • Will it protect and enhance aquatic, transitional and terrestrial species and habitats? • Will it introduce or allow the spread of Invasive Non-Native Species (INNS)? • Will it avoid the spread of non-native invasive species? • Will it contribute to the sustainable management of natural habitats and ecosystems, i.e. within their limits and capacities taking into account climate change adaptability? • Will it affect WFD compliance e.g. good ecological potential/status? • Will it ensure maintenance or support provision of fish passage with respect to migratory fish functioning habitat connectivity? • Will it protect or enhance natural capital and ecosystem services? • Will it maintain or enhance access to areas of natural heritage conservation interest? • Will it provide educational or information resources for the public? • Will it create areas of improved biodiversity in urban or deprived areas?

	Strengthen the connections between people and nature and realise the value of biodiversity. Protection, conservation and enhancement of natural capital. Ecosystem services from natural capital contributes to the economy and therefore should be protected and, where possible, enhanced. Avoidance of activities likely to cause the spread of Invasive Non-Native Species (INNS). A need to protect the green infrastructure network.			• Does it take account of climate change adaptation? •
Population and human health	Water resources play an important role in supporting the health and recreational needs of local communities. To provide a clean, healthy environment that benefits both people and the economy. To ensure secure, safe, reliable, dependable, sustainable and affordable supplies of water are provided for all communities and all business sectors. Access to high quality open spaces and opportunities for sport and recreation can make an important contribution to the health and well-being of communities.	The need to ensure water supplies remain affordable especially for deprived or vulnerable communities The need to ensure continued improvements in levels of health across the region, particularly in urban areas and deprived areas. The need to ensure safe and reliable provision of water and sewerage services to maintain health and wellbeing of the population. 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, including opportunities for access to, protecting and enhancing	2.1 To protect and enhance health and well-being (including raising awareness of the importance and value of the water environment for health and well-being). 2.2 To protect and enhance the water environment for other users including recreation and navigation, as well as terrestrial recreational resources (including National Trails and Public Rights of Way) 2.3 To promote a sustainable economy with good access to essential services, including a resilient, high quality and affordable supply of water over the long term.	• Will it help to ensure provision of access to a secure resilient and affordable supply of drinking water particularly where additional water resources may not be available? • Will it help to protect or improve drinking water quality? • Will it raise awareness of the importance and value of the water environment for health and well-being? • Will it protect or enhance opportunities for recreation and tourist activities such as public rights of way and including navigation? • Will it help to promote healthy communities and avoid risks to health and wellbeing (for example through nuisance or resulting from traffic or transport changes,

	Promotion of well-being and healthy communities and protection from risks to these. Promotion of a sustainable economy supported by universal access to essential utility and infrastructure services. Protection and improvement of drinking water quality. A need to protect the green infrastructure network.	recreation resources, green infrastructure and the natural and historic environment. The need to accommodate an increasing population. 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 well-being and the economy.		disruption to safe and reliable water/sewerage services)? • Will it assist in ensuring provision of essential infrastructure and services to support health and well-being a sustainable economy? • Is it located in an area considered to be significantly more deprived than others in the region? • Will it improve access to open spaces, the natural and historic environment? Does it protect and enhance the green infrastructure network?
Material assets and resource use	Promote sustainable management of natural resources, sustainable production and consumption whilst seeking to reduce the amount of waste generated by using materials, energy and water more efficiently. Consider issues of water demand, water supply and water quality in the natural environment and ensure a sustainable use of water resources. Government expects water companies to continue reducing overall demand for water particularly in areas designated as water stressed, or where demand is above the national average. Contribute to a resource efficient, green and competitive low carbon economy.	The need to minimise the consumption of resources, including water and energy. The need to reduce the total amount of waste produced in the region, from all sources. The need to recognise waste as a potential resource and reuse waste productively where possible to support development of the circular economy. The need to reduce the proportion of waste sent to landfill. The need to continue to actively control leakage from the water supply system to help reduce demand for water. The need to encourage more efficient water use.	3.1 To reduce, and make more efficient, the domestic, industrial and commercial consumption of resources, minimise the generation of waste, encourage its re-use and eliminate waste sent to landfill. 3.2 To promote the sustainable management of natural resources including efficient and sustainable use of water; ensure resilient water supplies for homes and industry in the area is maintained.	• Will it help to minimise the demand for resources (including water)? • Will it minimise the use of energy and promote energy efficiency? • Will it make use of existing infrastructure? • Will it help to encourage sustainable design or use of sustainable materials (e.g. supplied from local resources)? • Will it reduce the amount of waste generated and increase the proportion sent to reuse or recycling? • Will it enable efficient water resource management to help maintain a supply-demand balance? • Will it encourage the productive reuse of waste including energy recovery?

	Maintain a resilient, reliable public water supply and ensure there is enough water for human uses, as well as providing an improved water environment. Minimise the production of waste, maximise resource benefits from waste and ensure waste management is in line with the 'waste hierarchy'; eliminate waste sent to landfill. Promote the sustainable management of natural resources.			
Water	Promote sustainable water resource management, including a reduction in water consumption, to meet society's needs and offer opportunities for green growth whilst protecting and enhancing the natural environment. Maintain and improve water quality (surface water, groundwater and bathing waters). Expanding the scope of water quality protection measures to all waters, surface waters and groundwater. Improve the quality of the water environment and the ecology which it supports, and continue to provide high	The need to further improve the quality of the regions' river and estuarine waters taking into account WFD objectives. The need to maintain the quantity and quality of groundwater resources taking into account WFD objectives and River Basin Management Plan measures. The need to improve the resilience, flexibility and sustainability of water resources in the region, particularly in light of potential climate change impacts on surface water and groundwater. The need to ensure sustainable abstraction to protect the water environment and meet society's needs for a resilient water supply	4.1 To avoid adverse impact on surface and groundwater levels and flows, including when this impacts on habitats and/or navigation. 4.2 To protect and enhance surface and groundwater quality and protect and enhance estuarine waterbodies. 4.3 To ensure appropriate and sustainable water resource management whilst protecting ecosystem functions that rely on water resources, including contributing to the achievement of WFD objectives 4.4 To promote measures to enable and sustain long term improvement in water efficiency. 4.5 To reduce or manage flood risk.	• Will it alter the flow regime or residence time of surface waters? • Will it prevent water pollution? • Will it affect water quality compliance or WFD protected areas? • Will it lead to changes in river flows, wetted width or river level? • Will it lead to changes in groundwater levels and recharge? • Will it present a risk to water quality of groundwater, surface waters or estuarine waters? • Will it prevent water pollution? • Will it affect water quality compliance • Will it affect WFD protected areas? • Will it achieve WFD compliance? e.g. good ecological potential/status, prevent deterioration of WFD status between status classes?

	levels of drinking water quality. Ensure appropriate management of abstractions and protect flow and level variability across the full range of regimes from low to high conditions. Prevent deterioration of WFD waterbody status and contribute to achievement of WFD Good Status. Minimise impacts on WFD RBMP objectives. Develop a resilient and flexible water management approach to cope with changing climate, population and economic conditions. Balance the abstraction of water for supply with the other functions and services the water environment performs or provides. Steer new development to areas with the lowest probability of flooding and manage any residual flood risk, taking account of the impacts of climate change. Promote measures to enable and sustain long-term improvement in water efficiency. Ensure a sustainable balance between the supply and demand for water. Reduce flood risk to people, residential and commercial properties, community	The need to reduce and manage flood risk. The need to ensure that people understand the value of water.		• Will it prevent the introduction of impediments to the attainment of WFD good status or potential? • Will it minimise impacts on, or contribute to achievement of, RBMP objectives? • Will it present a risk to water quality of groundwater or surface waters? • Will it ensure sustainable abstractions, taking account of water resources availability status? • Will it contribute to meeting society's needs for a sustainable, resilient water supply? • Will it achieve an appropriate balance of water supply with other functions and services? • Will it contribute towards improving the awareness of water sustainability and its true value? • Will it promote measures to enable improvements in water efficiency and assist in balancing supply and demand? • Will it avoid reducing flood plain storage, or provide opportunities to improve flood risk management?'

	facilities and key infrastructure, designated environmental features, heritage assets and landscapes of value. Reduce risk of flooding from reservoirs.			
Soil, geology and land use	Protect and enhance the quality and diversity of geology (including geological SSSIs) and soils including geomorphology and geomorphological processes which can be lost or damaged by insensitive development. Ensure that soils will be protected and managed to optimise the varied ecosystem service functions that soils perform for society (e.g. supporting agriculture and forestry, protecting cultural heritage, carbon sequestration, supporting biodiversity, as a platform for construction), in keeping with the principles of sustainable development. Promote catchment-wide approach to land management by relevant stakeholders, in order to benefit natural resources, reduce pollution and develop resilience to climate change. Promote mixed-use developments, and encourage multiple benefits from the use of land in urban and rural areas, recognising	The need to protect geological features of importance (including geological SSSIs) and maintain and enhance soil function and health. The need to manage the land more holistically at the catchment level, benefitting landowners, other stakeholders, the environment and sustainability of natural resources (including water resources). The need to make use of previously developed land (brownfield land) and to reduce the prevalence of derelict land in the region.	5.1 To protect and enhance geology, geomorphology, the quality and quantity of soils 5.2 To protect and enhance the ecosystem services functions of land, soils and geology, including carbon sequestration, flood attenuation, pollutant filtration and nutrient cycling. 5.3 To promote a catchment-wide approach to catchment land management.	• Will it avoid damage to and protect geologically important sites? • Will it protect and enhance geomorphology and geomorphological processes? • Will it protect and enhance the quality of soils? • Will it ensure efficient use of land (e.g. make use of previously developed land)? • Will it contribute towards a catchment-wide approach to land management? • Will it protect and enhance geological SSSIs or similar nationally protected sites?

	that some open land can perform many functions. 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. Conservation and enhancement of geological SSSIs.			
Air and Climate	Reduce greenhouse gas emissions and meet targets set by international agreements, national and local governments. Targets include: reduce the UK's greenhouse gas emissions by at least 80% (relative to 1990 levels) by 2050. Reduce the effects of air pollution on ecosystems. Improve overall air quality. Sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Minimise energy consumption, support the use of sustainable/renewable energy and improve resilience to climate change. Build in adaption to climate change to future planning and consider the level of urgency	The need to reduce air pollutant emissions (industrial processes/transport) and limit air emissions to comply with air quality standards. The need to reduce greenhouse gas emissions (industrial processes and transport). The need to mitigate against climate change through the reduction in greenhouse gas emissions in order to contribute to risk reduction over the long term. The need to adapt to the impacts of climate change for example through, sustainable water resource management, specific aspects of natural ecosystems (e.g. connectivity) as well as accommodating potential opportunities afforded by climate change.	6.1 To reduce air pollutant emissions. 6.2 To reduce greenhouse gas emissions. 6.3 To adapt and improve resilience to the threats of climate change.	• Will it reduce or minimise air pollutant and greenhouse gas emissions? • Will it increase emissions to air in an areas sensitive to emissions (e.g. in proximity to an AQMA or to sensitive habitat or more deprived area)? • Will it reduce transport or energy requirements? • Will it reduce vulnerability to risks associated with climate change effects (e.g. reduce the adverse effects of droughts and floods)? • Will it improve resilience/adaptability to likely effects of climate change, e.g. by increasing resilience of water supplies? • Will it create opportunities to benefit from potential effects of climate change? • Will it make use of renewable energy?

	of associated risks of climate change impacts accordingly. Need for adaptive measures to respond to likely climate change impacts on water supply and demand.			
Archaeology and cultural heritage	Built development in the vicinity of historic buildings and Scheduled Monuments could have implications for the setting and/or built fabric and cause damage to any archaeological deposits present on site. Ensure active management of the Region's environmental and cultural assets. Promote the conservation and enhancement of the historic environment, including the promotion of heritage and landscape as central to the culture of the region and conserve and enhance distinctive characteristics of landscape and settlements. Conserve and enhance the historic environment, heritage assets and their settings. Protect, enhance and manage the character and appearance of historic and cultural assets and their settings including maintaining and strengthening local distinctiveness and sense of place. Ensure effects resulting from changes to water level	The need to conserve or enhance sites of archaeological importance and cultural heritage interest, particularly those which are sensitive to the water environment.	7.1 To conserve and enhance the historic environment, heritage assets and their settings, and protect archaeologically important sites. 7.2 To protect, enhance and manage the character and appearance of historic and cultural assets and their settings including maintaining and strengthening local distinctiveness and sense of place.	• Will it avoid damage to and protect the historic environment, heritage assets and their settings, places and spaces that enhance local distinctiveness? • Will it maintain and enhance the historic environment, including palaeo-environmental deposits? • Will the hydrological setting of water-dependent assets be altered, such as important wetland areas with potential for paleo-environmental deposits? • Will the changes in groundwater levels/surface and groundwater chemistry negatively impact on preserved organic and paleo-environmental remains? • Will it improve access, value, understanding or enjoyment of heritage assets and culturally/historically important assets in the region?

	(surface or sub-surface) on all water dependent historical and cultural assets are avoided. Consider effects on important wetland areas with potential for paleo-environmental deposits.			
Landscape and visual amenity	Protection and enhancement of landscape (including designated landscapes, landscape character, distinctiveness and the countryside). Abstraction and low river flows could negatively affect landscape and visual amenity. Enhance the value of the countryside by protecting the natural environment for this and future generations. Improve access to valued areas of landscape character in sustainable ways to enhance its enjoyment and value by visitors and stakeholders.	The need to protect and improve the natural beauty of AONBs, National Parks and other designated landscapes and other areas of natural beauty. The need to protect and improve the character of landscapes and townscapes.	8.1 To protect, enhance the quality of and improve access to designated and undesignated landscapes, townscapes and the countryside.	• Will it avoid adverse effects and enhance designated landscapes? • 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 improve access to valued areas of landscape character?

5.2 Proposed Framework for Assessment

5.2.1 Primary Assessment

An appraisal framework is proposed to assess each of the options against the SEA objectives (as set out in Table 5.2). The appraisal framework will be applied to test the performance of the options, programmes and WRMP against the SEA objectives to see how far they meet these objectives. The performance will be used to inform Severn Trent Water's decision-making and development of the preferred programmes for each WRZ and the overall WRMP. The proposed appraisal framework table is shown in **Table 5.2**.

The first and second columns of Table 5.2 set out the SEA topics and objectives. The third column shows the SEA indicator questions (see proposed questions in **Table 5.1**) – answers to which will act as prompts to the assessors when considering the effects.

The fourth column will be populated with a commentary and evaluation of the effects of the option on the SEA objectives for each topic, with reference to the key questions proposed in **Table 5.1.** This commentary will include key details that underpin the assessment of that SEA objective, providing transparency as to how the significance of effects has been assessed. The commentary will include details of any best practice to be applied in implementing the option, programme or plan (e.g. best practice construction methods), together with details of any mitigation included within the design and cost of the activity and how these have reduced any adverse effects. By including planned mitigation in the design, the assessed effects are referred to as "residual effects after planned mitigation".

The fifth column will identify the magnitude of the effect on a scale of low, medium and high. The value/sensitivity of the receptor(s) will be identified in the sixth column on a scale of low, medium and high. The scale of the effect, which might relate to either geographical scale and/or the size of the population affected, will be identified in the seventh column on a scale of small, medium to large. The impact evaluation will include consideration of the nature of the impact, likelihood, duration and permanence (eighth, ninth and tenth columnsError! Reference source not found.) in compliance with riteria for determining the likely significance of effects specified in the SEA Directive Article 3(5) and Annex II, and the SEA Regulations Part 2, Regulation 9(2a) and Schedule 1. With respect to duration of temporary effects, short-term impacts will be defined as those that last for up to six months, medium term impacts are those that extend for six months to two years whilst longer term temporary impacts are assessed as those that extend to two to five years. A "significant long term" temporary impact category will be used for those temporary effects that continue beyond five years in duration.

The residual adverse and beneficial effects (after application of best practice approaches and any planned mitigation measures) will be identified in the eleventh and twelfth columns respectively. In line with best practice, the adverse and beneficial effects will be assessed and reported separately for all the assessment stages (option, programme and plan level) so that these can clearly be understood and transparency of effects is maintained throughout the WRMP decision-making process.

Table 5.2 SEA appraisal framework to be completed for each WRMP option, programme and the WRMP

Topic	SEA objective	Commentary on the residual effects on sensitive receptors (after application of good practice methods and any planned mitigation)	Magnitude of effect (Low/ Medium/ High)	Value/ sensitivity of receptor (Low/ Medium/ High)	Scale of effect: geographical &/or population affected (Small/ Medium/ Large)	Certainty of effect (Low/ Medium/ High)	Short-term, medium-term, long term or significant long-term effect?	Permanence of effect (permanent/ temporary)	Residual effect significance (negligible /minor adverse/ moderate adverse/ major adverse)	Residual effect significance (negligible/ minor beneficial/ moderate beneficial/ major beneficial)
Biodiversity fauna and flora	1.1 To conserve and enhance biodiversity, including designated sites of nature conservation interest and protected habitats and species (with particular regard to avoiding the effects of over-abstraction on sensitive sites, habitats and species).									
	1.2 To protect, conserve and enhance natural capital and the ecosystem services from natural capital that contribute to the economy.									
	1.3 To strengthen the connections between people and nature and realise									

	the value of biodiversity and ecosystem services.									
Population and human health	2.1 To protect and enhance health and well-being (including raising awareness of the importance and value of the water environment for health and well-being).									
	2.2 To protect and enhance the water environment for other users including recreation and navigation, as well as terrestrial recreational resources (including National Trails and Public Rights of Way).									
	2.3 To promote a sustainable economy with good access to essential services, including a resilient, high quality and affordable supply of water over the long term.									
Material assets and resource use	3.1 To reduce, and make more efficient, the domestic, industrial and commercial consumption of resources, minimise									

	the generation of waste, encourage its re-use and eliminate waste sent to landfill.									
	3.2 To promote the sustainable management of natural resources including efficient and sustainable use of water; ensure resilient water supplies for homes and industry in the area is maintained.									
Water	4.1 To avoid adverse impact on surface and groundwater levels and flows, including when this impacts on habitats and/or navigation.									
	4.2 To protect and enhance surface and groundwater quality and protect and enhance estuarine waterbodies.									
	4.3 To ensure appropriate and sustainable water resource management whilst protecting ecosystem functions that rely on water resources,									

	including contributing to the achievement of WFD objectives									
	4.4 To promote measures to enable and sustain long-term improvement in water efficiency.									
	4.5 To reduce or manage flood risk.									
Soil, geology and land use	5.1 To protect and enhance geology, geomorphology, the quality and quantity of soils.									
	5.2 To protect and enhance the ecosystem services functions of land, soils and geology, including carbon sequestration, flood attenuation, pollutant filtration and nutrient cycling.									
	5.3 To promote a catchment-wide approach to catchment land management.									
Air and climate	6.1 To reduce air pollutant emissions.									
	6.2 To reduce greenhouse gas emissions.									
	6.3 To adapt and improve resilience to the threats of climate change.									

Archaeology and cultural heritage	7.1 To conserve and enhance the historic environment, heritage assets and their settings, and protect archaeologically important sites.									
	7.2 To protect, enhance and manage the character and appearance of historic and cultural assets and their settings, including maintaining and strengthening local distinctiveness and sense of place.									
Landscape and visual amenity	8.1 To protect, enhance the quality of and improve access to designated and undesignated landscapes, townscapes and the countryside.									

The SEA appraisal framework will be used to capture the assessment for each option (one table completed per option), alternative WRZ programmes and the WRMP as a whole.

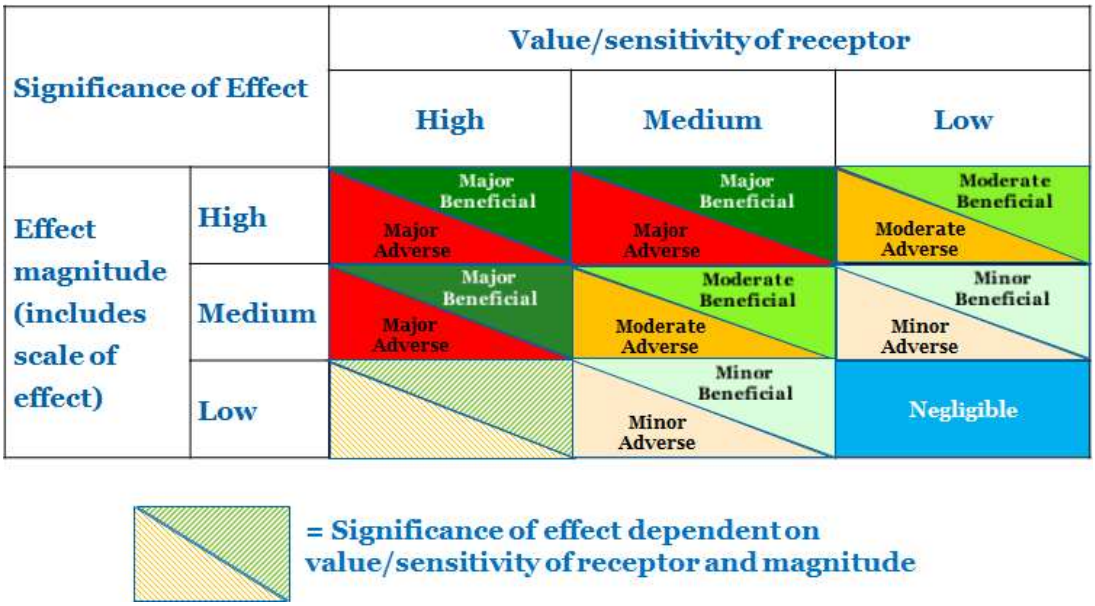
Varying levels of uncertainty are inherent within the assessment process. The assessment will minimise uncertainty through the application of expert judgement. The level of uncertainty of the option assessment for each SEA objective will be reported in the appraisal framework (**Table 5.2**). Where there is significant uncertainty which precludes an effects assessment category being assigned for a particular option and SEA objective, an "uncertain" residual effects assessment label will be applied to that specific SEA objective.

The assessment of the options, alternative WRZ programmes and the overall WRMP will be carried out using the effects assessment matrix shown in **Figure 5.1** and taking account of the scale of effect (geographical and/or population affected) (small/medium/large), whether the effects arise in the short, medium or long term, and whether the effects are permanent or temporary. The definitions for the effects significance are explained beneath Figure 5.1. The colour coding shown in **Figure 5.1** will be used to complete the columns for residual effects in the SEA appraisal framework.

The effects assessment will take account of any proposed mitigation measures that have been incorporated into the option conceptual design and costs, i.e. it is the residual effects after the application of mitigation that will be assessed. Any proposed mitigation measures included in the option design and costs will be clearly described and information provided along with the rationale for the mitigation and the extent to which the measures will reduce the identified adverse effects.

The resulting significance of effects will be used in the prioritisation of options and programmes of options. Where major adverse residual effects are predicted, should the option/programme be included in the WRMP, measures envisaged to prevent, reduce and as fully as possible offset these effects on the environment (as a result of implementing the WRMP) will be outlined in the Environmental Report as appropriate. These will be in addition to any mitigation that has already been included in the conceptual design and costs of each alternative option. Mitigation may include additional provisions within the WRMP itself and/or measures to be applied during the WRMP implementation stage. It may also include proposals for changing other plans and programmes to address significant cumulative residual effects. Severn Trent Water will consider how any remaining significant residual effects identified are to be monitored to identify any unforeseen adverse effects and to enable appropriate remedial action to be taken.

Figure 5.1 Significance matrix



The definitions for 'significance' ratings as identified in the table above are provided below:

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

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

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

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

For the '**high' effect magnitude** (top row), a major effect significance is assigned for both high and medium value receptors to reflect the magnitude of the effect.

For the **'low' effect magnitude and 'high' value receptor** (bottom left box), the significance of effect could be moderate or major dependent on the precise nature of the impact or benefit.

The assessment will involve quantitative analysis of environmental and social effects as appropriate, informed by the availability of accepted assessment methods and associated data requirements. The analysis methods will use a detailed suite of environmental and social datasets that are available at a consistent quality across the geographical footprint of all the options under consideration. **Figure 5.2** confirms that the HRA and WFD assessments will also inform the assessments at each key stage, with any adverse implications for Habitats Directive or WFD compliance flagged at the option assessment stage to inform decision-making at the programme appraisal and WRMP assessment stages. The associated Habitats Regulations Assessment (HRA) and Water Framework Directive assessment of the individual WRMP options are an input to the SEA options assessment process, informing the assessments for the 'Biodiversity, Flora and Fauna' and 'Water' topic areas. HRA and WFD assessments of the alternative programmes will equally input to the SEA of the alternative programmes.

Figure 5.2 Integrating HRA and WFD into the SEA

Additionally, assessment will be carried out and specifically reported within the SEA Environmental Report as to the effects on any SSSI as previously required for WRMPs by Natural England/NRW. This effects assessment will take account of the conservation objectives established for the relevant SSSI in consultation with Natural England or NRW, as applicable. This is in line with the WRPG which states that companies must "ensure compliance with other legally binding environmental objectives (e.g. those for non-Natura 2000 SSSIs)".

Depending on the site in question, assessment of the water management implications of the WRMP will need to take account of the Commons Standards Monitoring requirements (SSSI and European sites), specific conservation objectives (where these exist for European Sites, for example for the River Wye SAC) or Favourable Condition Targets (for SSSIs); these will invariably take precedent over the Water Framework Directive requirements.

Effects on other designated sites set out in the WRPG will also be specifically reported in the SEA: National Nature Reserves; Local Nature Reserves; local wildlife sites; marine conservation zones; Scheduled Ancient Monuments; World Heritage Sites; National Parks; European Landscape Convention; Areas of Outstanding Natural Beauty.

Dealing with the long-term nature of the WRMP

It is proposed to use the best currently available information and projections or make assumptions (in the absence of projections) about the likely changes to the social and environmental characteristics over the planning horizon against which option-level assessments will be carried out. This will include known or highly likely changes to the water resources baseline linked to Severn Trent Water's existing confirmed plans (e.g. reduction in leakage and increased metering of household customers).

At the programme appraisal stage, the suite of options included in the alternative programmes being assessed under the SEA (and the programme as a whole) will be subject to additional scenario testing to understand the sensitivity of the effects assessment of the programme to different assumptions about the long-term environmental and social characteristics. These scenarios will be informed through dialogue with Severn Trent Water and regulators, consistent with other scenario testing being undertaken on the WRMP. This scenario testing will also be applied to the WRMP as a whole once the preferred programmes for each WRZ have been determined.

Findings from the scenario testing will be reported in the Environmental Report and commentary provided as to any changes to the alternative programmes and/or WRMP that are made as a consequence. It is anticipated that UKCIP[79] socio-economic scenarios could be used as a starting point for the scenario testing.

Summarising the effects assessment

The completed appraisal framework table for each option, alternative programmes and the overall WRMP will be presented in full in an appendix to the Environmental Report. A summary of the assessment will be presented within the main text of the Environmental Report as a colour-coded visual evaluation (VE) matrix. An example of the proposed VE matrix is given in **Table 5.3**. For each option and each SEA topic listed in the left hand column of **Table 5.2** the VE matrix summarises the likely significance of impacts (which will be discussed in full in the completed appraisal framework tables).

[79] UK Climate Impacts Programme: http://www.ukcip.org.uk/

Table 5.3 Example of the proposed Visual Evaluation Matrix (to be completed for each SEA objective – only a portion of the objectives are shown for illustration purposes)

Option name, Programme or WMRP	**SEA objective – adverse effects**									**SEA objective – beneficial effects**								
	Objective 1.1	*Objective 1.2*	*Objective 1.3*	*Objective 2.1*	*Objective 2.2*	*Objective 2.3*	*Objective 3.1*	*Objective 3.2*	*Objective 4.1*	*Objective 1.1*	*Objective 1.2*	*Objective 1.3*	*Objective 2.1*	*Objective 2.2*	*Objective 2.3*	*Objective 3.1*	*Objective 3.2*	*Objective 4.1*
[Option 1]																		
[Option 2]																		

Table 5.4 Example SEA appraisal framework summary

Option	*[name of option]*
Summary commentary of scheme adverse effects	*[Summary]*
SEA objectives adverse effects summary	1.1, 4.4, 4.5, 1.2, 4.2, 6.1, 7.3, 8.1, 2.3, 3.1, 4.3, 1.3, 2.1, 2.2, 3.2, 4.1, 5.1, 6.2, 7.1, 7.2
Summary commentary of scheme beneficial effects	*[Summary]*
SEA objectives beneficial effects summary	2.3, 3.1, 4.3, 4.5, 5.1, 7.1, 1.1, 1.2, 4.4, 2.2, 3.2, 6.1, 1.3, 2.1, 4.1, 4.2, 6.2, 7.2, 7.3, 8.1

The completed appraisal framework table for each option, programme or the WRMP will also be accompanied in the appendix to the Environmental Report by a summary comprising an overview of the adverse and beneficial effects (presented in ascending order of effect significance) as presented in **Table 5.4**.

In assessing each option, programme or WRMP, the effects (beneficial or adverse) of any interactions between SEA topics will be identified, assessed and reported.

5.2.2 Secondary, cumulative and synergistic environmental effects

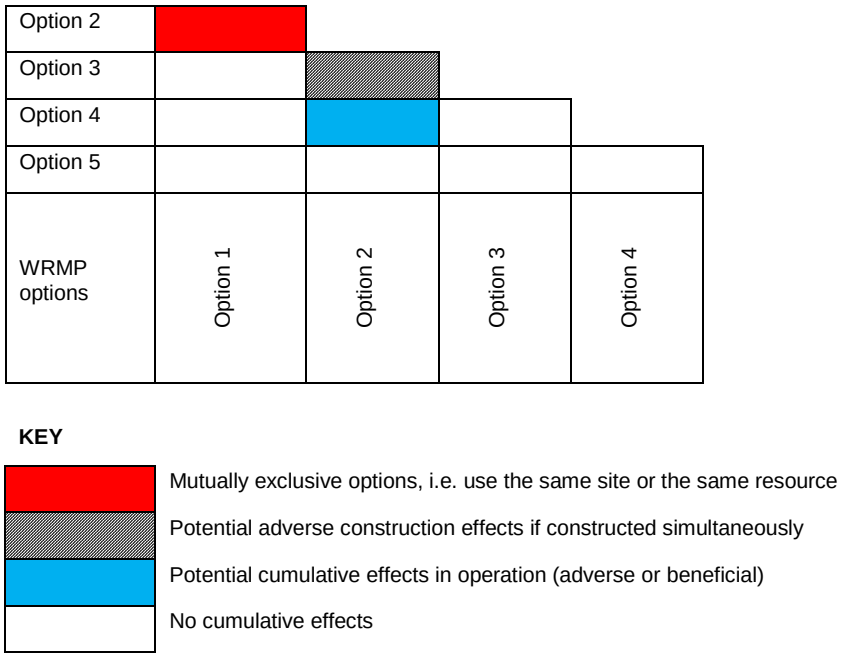
Schedule 2(6) of the SEA Regulations requires the assessment of "The likely significant effects on the environment, including short, medium and long-term effects, permanent and temporary effects, positive and negative effects, and **secondary, cumulative and synergistic effects**…." These can be defined as follows:

- Secondary or indirect effects are effects that are not a direct result of the plan, (e.g. an abstraction that changes local groundwater levels and thus affects the ecology of a nearby wetland)
- Cumulative effects arise, for instance, where several nearby groundwater sources each have insignificant effects but together have a measurable effect on river flows; or where several individual effects of a water resource zone programme (e.g. traffic disruption) have a combined effect.
- Synergistic effects interact to produce a total effect greater than the sum of the individual effects. Synergistic effects often happen as habitats, resources or human communities get close to capacity. For instance, a wildlife habitat can become progressively fragmented with limited effects on a particular species until the last fragmentation makes the areas too small to support the species at all.

The term 'cumulative effects' is being adopted as the collective term to include secondary, cumulative and synergistic effects (as suggested by the Practical Guide). The SEA of the WRMP will include cumulative effects assessment at each of the assessment levels as described in the following sections (option-level, programme-level and overall WRMP). It should be noted that some options may be mutually exclusive (i.e. only one of these options can be developed) and this will also be identified in the SEA as part of the option-level assessment. For the programme level and WRMP level assessment, cumulative effects will include consideration of other plans, programmes and projects in the context of spatial and/or temporal proximity.

A matrix such as the example provided in **Figure 5.3** will be used to help consider interactions between options or programmes. In assessing these effects, consideration will be given to other factors which may affect the receiving environment in the short, medium and long term. At the programme appraisal and WRMP assessment stages, consideration will be given to the different planning horizons being adopted for the WRZs. For those options in WRZs with shorter planning horizons, an assessment will be made of the potential for longer term cumulative effects with options in other WRZs with longer planning horizons, with the proposed sensitivity testing also helping to assess the risks of longer term cumulative effects.

Figure 5.3 Cumulative Effects Assessment Matrix



Visualisation techniques, such as causal chain analysis diagrams, will be used to assess what may be relatively complex interactions between different programmes, plans and projects.

Programme and WRMP level cumulative effects assessment

To meet the requirements of the SEA Directive, the cumulative effects between the Preferred Programmes for each WRZ will be assessed, as will those of the WRMP with other relevant plans, programmes or projects, including Severn Trent Water's Drought Plan and neighbouring water companies' WRMPs and Drought Plans.

Cumulative effects with non-water resources related plans, programmes and projects will be considered where relevant, including existing completed projects, approved but uncompleted projects, ongoing activities, plans or projects for which an application has been made and which are under consideration by consenting authorities and plans and projects which are reasonably foreseeable (i.e. projects for which an application has not yet been submitted, but which are likely to progress before completion of the development and for which sufficient information is available to assess the likelihood of cumulative and in-combination effects). Sources of information include the following:

- Land use and development plans to identify major development proposals (those which are likely to generate large scale construction or operational effects e.g. growth points, strategic centres, infrastructure projects and other schemes within 10km of each scheme;
- Opportunity areas (e.g. areas of 'brown' field land with the capacity to accommodate new housing, commercial and other developments);
- Areas for intensification (e.g. areas that can support redevelopment at high densities but at a level below that of Opportunity Areas);
- Transport and other infrastructure plans (e.g. flood risk management plans, energy, other utilities).

The following cumulative assessments are proposed in the SEA:

1. Within each WRZ, assessment of cumulative effects of options that could potentially be implemented at the same time (intra-zone). Mutually exclusive options (e.g. those that draw upon the same resource or use the same site) will also be identified.

2. Between each WRZ, assessment of cumulative effects of options (inter-zone) that could potentially be implemented at the same time across the entire WRMP.
3. Assessment of cumulative effects of the Severn Trent Water WRMP with the Severn Trent Water Drought Plan, other water company Drought Plans and WRMPs, Environment Agency and NRW Drought Plans (and any other drought plans prepared by other bodies, such as the Canal & River Trust). The potential for a neighbouring company implementing options under its WRMP simultaneously will be considered. Neighbouring water companies will be included as consultees to the WRMP and associated SEA Environmental Report in order to identify any trans-boundary issues.
4. Assessment of potential cumulative effects of the Severn Trent Water WRMP with any other identified relevant programmes, plans and projects that may be in place / implemented during the period of the WRMP.

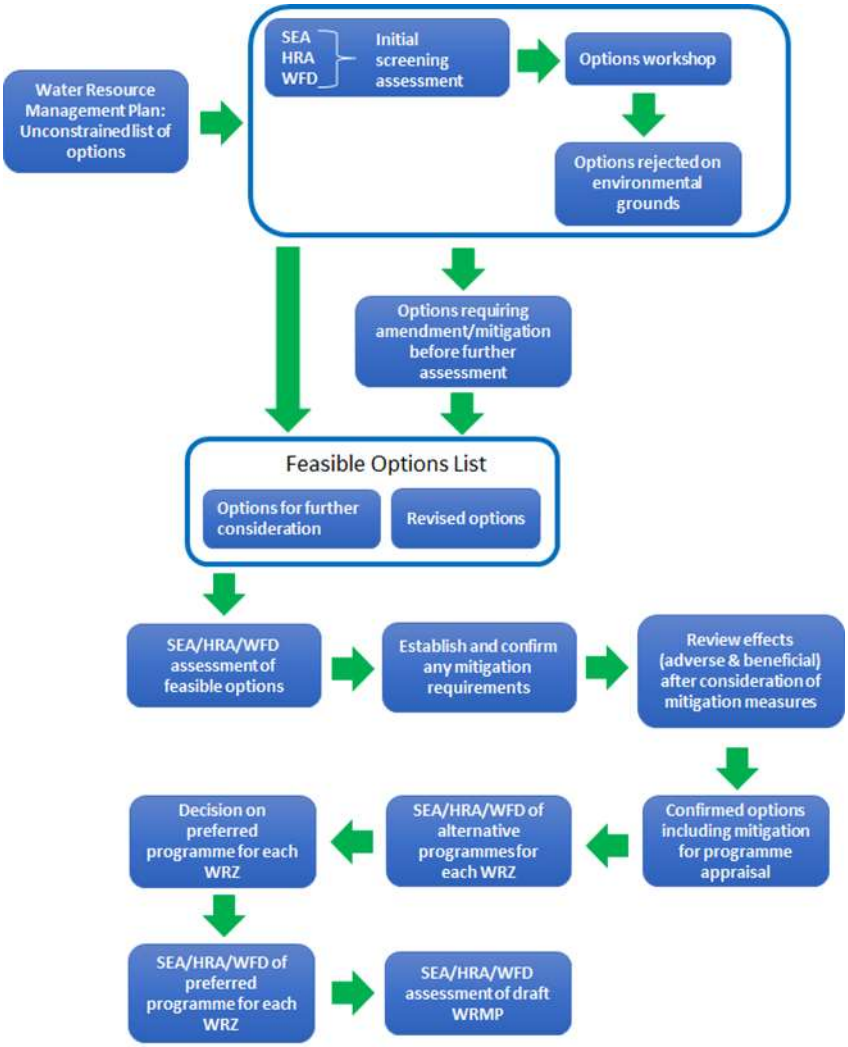
5.2.3 Consideration of reasonable alternatives

A wide range of reasonable alternative options are being considered for the WRMP through the SEA comprising different supply-side and demand-side options In determining the preferred programme of options, Severn Trent Water will use the findings of the option-level SEA to inform the programme appraisal modelling which will identify a short-list of alternative programmes for each water resource zone. These alternatives will be assessed through the programme-level SEA to inform decisions on the preferred programme. Finally, the combined set of water resource zone programmes will be assessed through the WRMP-level SEA, and this may identify the need for further modifications to the water resource zone programmes prior to finalisation of the WRMP for public consultation.

6 Use of SEA in WRMP Options and Programme Appraisal

The UKWIR Guidance on integrating SEA into WRMPs and the WRPG provide clear directions as to how SEA outputs should be used in options and programme appraisal. Figure 6.1 summarises the overall approach to the evolution of the WRMP from initial "unconstrained" list of options through to the preferred programme for each WRZ. The associated Habitats Regulations Assessment (HRA) and Water Framework Directive assessment of the individual WRMP options are an input to the SEA options assessment process, informing the assessments for the 'Biodiversity, Flora and Fauna' and 'Water' topic areas. HRA and WFD assessments of the alternative programmes will equally input to the SEA of the alternative programmes

Figure 6.1 Options and Programme Appraisal



6.1 Options and Programme Appraisal

Options appraisal is an overarching term for the specification and assessment of options under consideration for the WRMP. SEA plays an important role in options appraisal; Severn Trent Water will consider the SEA (and HRA and WFD) assessment principles in moving from the initial "unconstrained" list of options to development of its feasible list of options - through this process, options which are found to have unacceptable adverse effects will be rejected from the options "pool" and will not reach the constrained list of options that will be subject to SEA and from which options will be selected to form alternative programmes for consideration through SEA and programme appraisal modelling.

The aim of the WRMP is to find the 'best value' programme of supply and/or demand options to restore and maintain a supply-demand balance in those WRZs for which a supply deficit has been forecast. The selection process is facilitated through programme appraisal modelling tools, which are designed to produce programmes optimised on a range of key selection criteria such as cost, customer acceptability, resilience and environmental and social effects.

6.2 Cumulative Effects Assessment

6.2.1 Cumulative Effects across Water Resources Zones

Once preferred programmes have been selected for each WRZ in deficit, these will be tested using a matrix such as that shown in Figure 5.3 earlier. This will identify potential cumulative impacts between schemes in the WRMP, such that they can be avoided or mitigated, or if necessary designed out by exclusion of schemes and re-modelling.

6.2.2 Cumulative effects with Other Plans and Programmes

Neighbouring water companies will be invited to comment on the draft WRMP and Severn Trent Water will also communicate with neighbouring companies regarding the schemes in their respective draft WRMPs. Potential effects with other plans will be identified, particularly in the context of spatial and temporal proximity. This is especially important in identifying potential water resources impacts, although licence changes would always be subject to further investigation by the companies themselves and the Environment Agency (or NRW in Wales). Potential cumulative effects with wider plans will also be assessed. If effects are identified they can be ameliorated with early stage mitigation and associated monitoring.

7 Next Steps

7.1 Consultation on the Scoping Report

This Scoping Report documents the proposed scope and approach for the SEA of Severn Trent Water's WRMP and represents Stage A of the SEA (see **Section 1.5**). It is issued as a consultation document to seek agreement on the scope and approach. Following consultation, the scope and/or approach may be modified to take account of consultees' responses. Consultation responses, and any subsequent amendments made as a consequence of the responses, will be documented in an appendix to the Environmental Report.

5 weeks are being provided for consultees to provide comments on the scope of the SEA as described earlier in this report, in accordance with SEA Regulation 12(6).

7.2 Stage B: Developing and Refining Alternatives and Assessing Effects

Stage B of the SEA process (see **Section 1.5**) comprises the SEA assessment and the development of reasonable alternative options. A wide range of reasonable alternative options are being considered for the WRMP through the SEA for consideration for the preferred programme of options for each water resource zone. In determining the preferred programme, Severn Trent Water will use the findings of the option-level SEA to inform the programme appraisal modelling which will identify a short-list of alternative programmes of options for each water resource zone. These alternative programmes will be assessed through the programme-level SEA to inform decisions on the preferred programme. Finally, the combined set of water resource zone programmes will be assessed through the WRMP-level SEA, and this may identify the need for further modifications to the water resource zone programmes prior to finalisation of the WRMP for public consultation.

7.3 Stage C: Preparation of the Environmental Report

7.3.1 Structure and Content

The findings of the SEA will be documented in an Environmental Report (this comprises Stage C of the SEA process (see **Section 1.5**). Assessments will be fully documented in the Environmental Report, to be published for consultation alongside the WRMP. The Environmental Report will also identify provisional monitoring and mitigation measures according to the significant effects identified.

A draft structure for the report is proposed in **Table 7.1**. The proposed structure of the report is derived from the requirements specified by the SEA Regulations[80] and set out in the Practical Guide[81]. A non-technical summary of the information will be provided under the headings listed in Schedule 2 of the SEA Regulations.

[80] SEA Regulations, Part 3, Regulations 2 and 3 and Schedule 2.
[81] Office of the Deputy Prime Minister (2005) *A Practical Guide to the Strategic Environmental Assessment Directive*.

Table 7.1: Draft structure for the Environmental Report

Non-Technical Summary	
1	**Introduction**
1.1	Strategic Environmental Assessment
1.2	Purpose of the Environmental Report
1.3	Requirement for SEA of Severn Trent Water's Water Resources Management Plan
1.4	SEA and Water Resources Management Planning
1.5	Habitats Regulations Assessment
1.6	Water Framework Directive Assessment
1.7	Consultation
1.8	Structure of the Environmental Report
2	**Planning**
2.1	Introduction
2.2	Severn Trent Water's Supply and Resource System
2.3	Severn Trent Water's Water Resource Management Plan 2019
3	**Policy Context**
3.1	Introduction
3.2	Review of Plans, Policies and Programmes
4	**Environmental Baseline Review**
4.1	Introduction
4.2	Spatial Extent of the SEA
4.3	Limitations of the Data and Assumptions Made
4.4	Overview
4.5	Key Issues
5	**Assessment Methodology**
5.1	Proposed SEA Objectives
5.2	Interactions Between Objectives
5.3	Assessment Framework
5.4	Secondary, Cumulative and Synergistic Environmental Effects
5.5	Valuing environment and social costs and benefits
6	**Assessment of Options**
6.1	Individual Option Assessments
6.2	Cumulative Effects of Options
7	**SEA and Programme Appraisal**
7.1	Role of SEA in Programme and WRMP Decision-Making
7.2	WRZ Programme Appraisal SEA
7.3	SEA of the WRMP
8	**Cumulative Effects of the WRMP**
8.1	Cumulative Effects of the WRZ Preferred Programmes Comprising the WRMP
8.2	Cumulative Effects of the WRMP with Other Plans, Programmes and Projects
9	**Summary of WFD, HRA and Other Designated Sites Assessments**
9.1	Statement on HRA, SSSI and WFD Assessment of the WRMP
10	**Mitigation and Enhancement of Significant Effects**
10.1	Mitigation included in the WRMP
10.2	Mitigation of Cumulative Impacts of WRMP with Other Plans and Programmes
11	**Monitoring Proposals**
12	**Next Steps**
Proposed Appendices:	
• Quality assurance checklist	

- SEA Scoping Report consultation responses and actions
- Review of policies, plans and programmes
- Environmental baseline review
- Option, programme and WRMP assessment details
- Cumulative effects assessment details

7.3.2 Stage D: Consulting on the Draft WRMP 2019 and the Environmental Report

Severn Trent Water will formally invite the statutory consultation bodies, stakeholders and the public to comment on the draft WRMP and the SEA Environmental Report in early 2018. This consultation comprises Stage D of the SEA process as listed in Section 1.4. Comments made will be taken into account in determining the final WRMP, acknowledging that environmental and social considerations are not the only determining factors in formulating the WRMP. Depending on the comments received on the WRMP, it may be necessary to issue a revised WRMP and associated updated SEA Environmental Report for consultation prior to finalising the WRMP.

Any significant changes made to the WRMP at that stage of the process, including changes based on consultation responses and the SEA, will be assessed to identify their likely significant effects. The findings of the assessment will then be taken into account in developing the final WRMP.

7.3.3 SEA Statement

Once the revised WRMP is published and adopted, Severn Trent Water will publish a SEA Post Adoption Statement, describing how the SEA and the responses to consultation have been taken into account during the preparation of the WRMP. This statement will describe how environmental considerations have been integrated into the WRMP, and explain any changes made or alternatives rejected. Information will also be provided on the environmental monitoring to be carried out during implementation of the WRMP (Stage E of the SEA process), to track the environmental effects of the WRMP and to trigger appropriate responses where effects are identified.

7.4 SEA Programme

Table 7.2 below gives an outline of the indicative proposed programme for undertaking the SEA of Severn Trent Water's WRMP.

Table 7.2 SEA timetable (indicative)

SEA Reporting	Date
Preparation of Environmental Report	April to December 2017
Consultation on Environmental Report and Draft WRMP	January to March 2018
Statement of Response	July 2018
Final WRMP	TBC (timescales dependent on Secretary of State approval of the WRMP)
SEA Statement	TBC (timescales dependent on Secretary of State approval of the WRMP)

7.5 Quality Assurance

The Practical Guide on SEA contains a Quality Assurance checklist to help ensure that the requirements of the SEA Directive are met. The checklist is reproduced in **Appendix B**, **Table B1**, indicating where this Scoping Report meets the requirements, and which requirements will be addressed in the Environmental Report.

Appendices

Appendix A: Review of Policy, Plans and Programmes

Appendix B: Quality Assurance Checklist

Appendix A – Review of Policy, Plans and Programmes

The findings of the review of policy, plans and programmes are set out in **Table A1**. This table sets out the purpose and objectives of the policies, plans and programmes, their potential relationship with Severn Trent Water's WRMP, and the potential implications of the objectives of these policies, plans or programme for the development of the WRMP and associated SEA objectives.

Table A1 Summary of the Policy, Plans and Programmes reviewed and their link to the Strategic Environmental Assessment

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
International	
The Bonn Convention on the Conservation of Migratory Species of Wild Animals (1983)	
Aims to conserve terrestrial, marine and avian migratory species throughout their range. Enforced in European legislation through the Habitats Directive (92/43/EEC) and Birds Directive (79/409/EEC).	The impacts of the WRMP options on important Bird habitats (i.e. Ramsar sites and SPA designated sites) must be considered as part of the SEA.
The Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979)	
International convention that aims to ensure conservation of wild flora and fauna species and their habitats. Special attention is given to endangered and vulnerable species, including endangered and vulnerable migratory species specified in appendices. Enforced in European legislation through the Habitats Directive (92/43/EEC) and Birds Directive (79/409/EEC).	The potential impacts of the WRMP options on internationally designated sites, species and important Bird habitats must be considered as part of the SEA.
The Cancun Agreement (2011) & Kyoto Agreement (1997)	
The agreement represent 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. It includes a shared vision to keep global temperature rise to below two degrees Celsius.	The SEA should seek to promote a reduction in greenhouse gas emissions.
The Convention for the protection of the architectural heritage of Europe (Granada Convention)	
This sets the framework for the approach to conservation across Europe.	The SEA should take into account the need to conserve heritage.
Council of Europe (2006) European Landscape Convention	
European Landscape Convention (ELC) is the first international convention to focus specifically on landscape. Natural England implements the European Landscape Convention in England. The aims of the 2009/10 action plan are: • Lead on improving the protection, planning and management of all England's landscapes • Raise the quality, influence and effectiveness of policy and practical instruments	The implementation of the WRMP may influence landscape or the enjoyment of landscapes. As such the SEA should seek to maintain or enhance the quality of the regions landscapes and the potential enjoyment of these landscapes.

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
• Increase the engagement in and enjoyment of landscapes by the public • Collaborate with partners across the UK and Europe.	
Council of Europe (2003) European Soils Charter	
Sets out common principles for protecting soils across the EU and will help.	The SEA should seek to ensure that the quality of the regions land, including soils, is protected or enhanced.
Directive 2006/118EC of the European Parliament and of the council of 12 December 2006 on the protection of groundwater against pollution and deterioration	
Protection of groundwater from deterioration and chemical pollution.	The WRMP should take account of the main objective of the Directive to prevent pollution of groundwater.
The Environment Noise Directive (Directive 2002/49/EC)	
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. It also aims to provide the 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.	The SEA assessment framework should include for the protection against excessive noise.
European Commission (2008) The 2008 Ambient Air quality Directive (2008/50/EC)	
The 2008 ambient air quality directive (2008/50/EC) sets legally binding limits for concentrations in outdoor air of major air pollutants that impact public health such as particulate matter (PM10 and PM2.5) and nitrogen dioxide (NO2). As well as having direct effects, these pollutants can combine in the atmosphere to form ozone, a harmful air pollutant (and potent greenhouse gas) which can be transported great distances by weather systems.	The implementation of options within the WRMP may have some influence on air quality, either directly or indirectly through construction or operation activities. The WRMP and SEA should seek to ensure that the region's air quality is maintained or enhanced, and that emissions of air pollutants are kept to a minimum.
European Commission (2009) Birds Directive (2009/147/EC)	
The Directive provides a framework for the conservation and management of, and human interactions with, wild birds in Europe. It sets broad objectives for a wide range of activities, although the precise legal mechanisms for their achievement are at the discretion of each Member State (in the UK delivery is via several different statutes).	The WRMP and SEA will need to take account of commitments for SPAs within the WRMP area.
European Commission, Floods Directive (2007/60/EC)	
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	The WRMP may have some linkages with the aims of the Flood Directive, although flood control coastal erosion remains

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
basin management plans being coordinated, and through coordination of the public participation procedures in the preparation of these plans.	outside of the remit of the WRMP. The SEA objectives should ensure that flood risk is included to ensure that environmental and social benefits are gained.
European Commission (2006) Freshwater Fish Directive (2006/44/EC)	
The Directive seeks to protect those fresh waterbodies identified by Member States as waters suitable for sustaining fish populations. For those waters, it sets physical and chemical water quality objectives for salmonid waters and cyprinid waters. The Directive is designed to protect and improve the quality of rivers and lakes to encourage healthy fish populations.	The WRMP should cause no adverse effects on rivers and lake water quality, such that these waterbodies are able to sustain healthy and appropriate fish populations.
European Commission, Animal health requirements for aquaculture animals and products thereof, and on the prevention and control of certain diseases in aquatic animals (2006/88/EC)	
The Directive establishes: 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.	The implementation of the WRMP may influence biodiversity in the Severn River Basin District and as such, the SEA should seek to maintain or enhance the quality of habitats and biodiversity.
The European Convention on the protection of archaeological heritage (Valletta Convention)	
This aims to protect archaeological heritage across Europe.	The SEA should take account of the need to protect archaeological heritage.
European Commission, Environmental Liability Directive (2004/35/EC)	
The Directive establishes a framework for environmental liability based on the "polluter pays" principle, with a view to preventing and remedying environmental damage.	The WRMP will need to take account of the Directive. SEA should seek to ensure that the WRMP avoids causing direct or indirect damage to the aquatic environment or contamination of land that creates a significant risk to human health.
European Commission (2000) The Water Framework Directive (2000/60/EC)	
This Directive establishes a framework for the protection of inland surface waters, transitional waters, coastal water and groundwater. It also encourages the sustainable use of water resources. Key objectives are general protection of the aquatic ecology, specific protection of unique and valuable habitats, protection of drinking water resources, and protection of bathing water.	WRMP will need to take account of the objectives of the WFD for waterbodies, including those to improve status and prevent status deterioration. The SEA should seek to ensure that objectives address the objectives of the WFD.

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
European Commission, Drinking Water Directive (1998/83/EC) amended 2015	
The objective of the Drinking Water Directive is to protect the health of the consumers in the European Union and to make sure the water is clean and of good quality. To make sure drinking water everywhere in the EU is healthy, clean and tasty, the Drinking Water Directive sets standards for the most common substances (so-called parameters) that can be found in drinking water. A total of 48 microbiological and chemical parameters must be monitored and tested regularly.	The WRMP will need to take account of the Drinking Water Directive. The SEA should seek to ensure that options would maintain and improve drinking water quality in a sustainable way.
European Commission (1992) Habitats Directive (1992/43/EC)	
The aim of the Directive is to promote the maintenance of biodiversity by requiring Member States to take measures to maintain or restore natural habitats and wild species listed on the Annexes to the Directive at a favourable conservation status, introducing robust protection for those habitats and species of European importance. Note that the National Planning Policy Framework identifies that the following wildlife sites should be given the same protection as European sites: • potential Special Protection Areas and possible Special Areas of Conservation; • listed or proposed Ramsar sites; and • sites identified, or required, as compensatory measures for adverse • effects on European sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.	The WRMP must ensure full compliance with the Regulations. The SEA should ensure a positive contribution to the habitats and species plan area.
European Commission (2009) Promotion of the use of energy from renewable sources Directive (2009/28/EC)	
This Directive establishes a common framework for the use of energy from renewable sources in order to limit greenhouse gas emissions and to promote cleaner transport. To this end, national action plans are defined, as are procedures for the use of biofuels.	The WRMP involves options with power requirements and 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.
European Commission (2005) Thematic Strategy on Air Pollution	
This strategy supplements current legislation. It sets out objectives for air pollution and proposes measures for achieving them by 2020.	The SEA should take account of the need to reduce air pollution through the SEA objectives.
Nitrates Directive (91/676/EEC)	
The Directive aims to reduce and prevent the pollution of water caused by nitrates from agricultural sources. It is designed both to safeguard current and future drinking water resources and to prevent wider ecological damage in the form of eutrophication.	A large proportion of the WRMP area has been designated a Nitrate Vulnerable Zone. The WRMP and SEA should take account of this Directive and

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
	seek to avoid impacts on water quality.
Ramsar Convention The Convention on Wetlands of International Importance (1971)	
The Convention on Wetlands (Ramsar, Iran, 1971) (the "Ramsar Convention") is an intergovernmental treaty that embodies the commitments of its member countries to maintain the ecological character of their Wetlands of International Importance and to plan for the "wise use", or sustainable use, of all of the wetlands in their territories.	The impacts of the WRMP options on important wetland habitats must be considered as part of the SEA.
Revised Bathing Water Quality Directive (76/160/EEC)	
The quality of designated bathing waters in England is monitored against standards in the bathing water regulations (SI 1991/1597), which come from the EC Bathing Water Directive . This Directive is repealed by Bathing Water Quality Directive 2006/7/EC with effect from 31 December 2014.	The WRMP should take account of the objectives set out in the Bathing Water Quality Directives.
Urban Waste Water Treatment Directive (91/271/EEC)	
Objective is to protect the environment from the adverse effects of urban waste water discharges and discharges from certain industrial sectors (see Annex III of the Directive) and concerns the collection, treatment and discharge of: • Domestic waste water • Mixture of waste water • Waste water from certain industrial sectors	The WRMP should take account of the aims and objectives set out in the Urban Waste Water Treatment Directive and ensure that the plan does not have an adverse effect on these objectives.
United Nations (2002) Commitments arising from the World Summit on Sustainable Development, Johannesburg	
The World Summit on Sustainable Development proposed broad-scale principles that should underlie sustainable development and growth. It included objectives such as: • Greater resource efficiency • Work on waste and producer responsibility • New technology development • Push on energy efficiency • Integrated water management plans needed • Minimise significant adverse effects on human health and the environment from chemicals by 2020.	These commitments are the highest-level definitions of sustainable development. The WRMP should be influenced strongly by all of these themes and should seek to consider its aims. The SEA should seek to promote the achievement of the sustainable development objectives outlined in this plan.
United Nations Economic Commission for Europe (1998) Aarhus Convention - Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters	
The Aarhus Convention grants the public rights regarding access to information, public participation and access to justice, in governmental decision-making processes on matters concerning the local, national and transboundary environment. It focuses on interactions between the public and public authorities. The Aarhus Convention has been ratified by the European Community, which has begun applying Aarhus-type principles in its legislation, notably the Water Framework Directive (Directive 2000/60/EC).	The Convention is designed to improve the way ordinary people engage with government and decision-makers on environmental matters. It helps to ensure that environmental information is easy to get hold of and easy to understand. The WRMP and SEA Environmental Report should seek to provide easily

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
	understood information to the public on the environmental implications of the WRMP and its constituent options.
United Nations (1992) Convention on Biological Diversity (CBD)	
The main objectives are: • Conservation of biological diversity • Sustainable use of its components • Fair and equitable sharing of benefits arising from genetic resources	The commitment to conserving biological diversity must be considered in any WRMP options and the SEA should seek to promote the protection and enhancement of biodiversity.
Regional	
Environment Agency (2011), Water Resources Strategy – A Regional Action Plan for Midlands Region.	
Explains how the aims of the Environment Agency national strategy will be progressed by regional teams. Brings a sustainable approach to water management, taking into account regional challenges. This plan takes the aims and objectives of the strategy and identifies regional actions that will enable: • water to be abstracted, supplied and used efficiently • the water environment to be restored, protected and improved so that habitats and species can better adapt to climate change • supplies to be more resilient to the impact of climate change, including droughts and floods • water to be shared more effectively between abstractors • improved water efficiency in new and existing buildings • water to be valued, and for prices to act as an incentive for efficient use, while safeguarding vulnerable sectors of society • additional resources to be developed where and when they are needed in the context of a twin-track approach with demand management • sustainable, low-carbon solutions to be adopted • stronger integration of water resources management with land, energy, food and waste.	The WRMP operation may have the potential to affect the objectives for managing the Cannock Chase AONB. The SEA should include objectives that take into account the objectives of the Cannock Chase AONB management where relevant.
Environment Agency (2011) Water Resources Strategy – A Regional Action Plan for Thames Region.	
Explains how the aims of the Environment Agency national strategy will be progressed by regional teams. Brings a sustainable approach to water management, taking into account regional challenges. This plan takes the aims and objectives of the strategy and identifies regional actions that will enable: • water to be abstracted, supplied and used efficiently; • the water environment to be restored, protected and improved so that habitats and species can better adapt to climate change; • supplies to be more resilient to the impact of climate change, including droughts and floods; • water to be shared more effectively between abstractors; • improved water efficiency in new and existing buildings; • water to be valued, and for prices to act as an incentive for efficient use, while safeguarding vulnerable sectors of society;	The WRMP should take into consideration regional policies relevant to neighbouring water companies. This should be reflected in the SEA objectives.

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
• additional resources to be developed where and when they are needed in the context of a twin-track approach with demand management; • sustainable, low-carbon solutions to be adopted; • stronger integration of water resources management with land, energy, food and waste.	
Thames Water (2009) Taking care of water - Strategic Direction Statement 2010-2035.	
As a result of the consultation that fed into the Statement, Thames Water will: • Take into account future uncertainties caused by climate change, population change in the south-east, and living preferences in provision of water resources and waste-water management. Continue to produce high quality drinking water. Reduce leakage. Improve the quality of the tidal Thames by implementation of the TTS and reduction of overspills. • Reduce sewer flooding and odour issues. Improve water efficiency and develop new water resources. Maintain and improve high levels of customer service and efficiency. Maintain affordability.	The WRMP should take into consideration regional policies relevant to neighbouring water companies. This should be reflected in the SEA objectives
Environment Agency (2011) Enjoying Water - Strategic Priorities for Water Related Recreation in London and South East England	
The strategic priorities are designed to: • Encourage action by a range of interested parties and individuals; • deliver well managed, new and better opportunities for more people to enjoy water environments; • Tackle some of the issues that arise from changes in the demand for recreation, the supply of water bodies and gaps in provision; • Ensure everyone can enjoy water environments. The Steering Group have developed a programme for implementation with measures of success for each of the strategic priorities and related actions. The implementation of the priorities will require local actions by local organisations and communities.	The WRMP should take into consideration regional policies relevant to neighbouring water companies. This should be reflected in the SEA objectives.
Thames Waterways Plan 2015 – 2021, EA for the River Thames Alliance (2015)	
Developed by the EA in consultation with members of the River Thames Alliance (RTA). The objectives include: • To ensure that the best possible flood risk management procedures are being followed and that resources are sufficient. • To conserve, improve and restore a natural and biodiverse river environment wherever possible for the benefit both nature and people, as well as maintaining the character of the urban landscapes and countryside within the River Thames corridor. • The River Thames and its corridor should be promoted effectively as a visitor destination for the benefit of visitors and the regional economy. • To ensure that the non-tidal River Thames remains as navigable as possible for commercial and recreational boats, that the rules around	The WRMP should take into consideration regional policies relevant to neighbouring water companies. This should be reflected in the SEA objectives.

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
navigation are enforced, that the supporting infrastructure and facilities are fit for purpose and adequate staff are available. To increase the use of the Thames for water-based sport and physical recreation, focussing particularly on better access for people for whom current provision is less readily available.	
Cotswolds AONB Management Plan 2013-2018	
Objectives include those associated with conserving and enhancing the AONB.	The WRMP operation may have the potential to affect several of the objectives for managing the Cotswolds AONB. The SEA will include objectives that take into account the objectives of the Cotswolds AONB management where relevant.
Environment Agency Area Drought Plans (various)	
Identifies the measures that will be taken by the Environment Agency to plan for and manage droughts.	The WRMP should take account of relevant measures contained in these plans and the SEA should consider any cumulative effects between the WRMP and the relevant Environment Agency plans
Bristol Water (2009), Final Water Resources Management Plan 2010-2035.	
Bristol Water's statutory WRMP under the Water Act, 2003. Sets out plans to manage supply and demand for water in relevant water supply zones, while protecting the environment over a 25- year period. Includes SEA. The WRMP is based around the following sustainability objectives: • minimising the cost of the preferred solution • improved social and environmental impacts • reduction of carbon emissions • maximising the efficient use of water • impact on level of service.	The WRMP may have an effect on some of the other water suppliers WRMPs within the regions. The SEA should include objectives that take into account the objectives and policies from other WRMPs within the region where relevant.
Dee Valley Water (2009) Draft Final Water Resources Management Plan 2010-2035	
Dee Valley Water's statutory WRMP under the Water Act, 2003. Sets out plans to manage supply and demand for water in relevant water supply zones, while protecting the environment over a 25- year period. Includes SEA.	The WRMP may have an effect on some of the other water suppliers WRMPs within the regions. The SEA should include objectives that take into account the objectives and policies from other WRMPs within the region where relevant.
South Staffordshire Water (2009) Final Water Resources Management Plan 2010-2035	

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
South Staffordshire Water's statutory WRMP under the Water Act, 2003. Sets out plans to manage supply and demand for water in relevant water supply zones, while protecting the environment over a 25- year period. Includes SEA.	The WRMP may have an effect on some of the other water suppliers WRMPs within the regions. The SEA should include objectives that take into account the objectives and policies from other WRMPs within the region where relevant.
Anglian Water (2010), Final Water Resources Management Plan 2010-2035.	
Anglia Water's statutory WRMP under the Water Act, 2003. Sets out plans to manage supply and demand for water in relevant water supply zones, while protecting the environment over a 25- year period. Includes SEA. The WRMP's strategic priorities are to: • increase the resilience of our water and wastewater services • secure and conserve water resources • anticipate and invest for growth in our region • mitigate and adapt to climate change impacts.	The WRMP may have an effect on some of the other water suppliers WRMPs within the regions. The SEA should include objectives that take into account the objectives and policies from other WRMPs within the region where relevant.
Thames Water (2012) Final Water Resources Management Plan 2010-2035	
Thames Water's statutory WRMP under the Water Act, 2003. Sets out plans to manage supply and demand for water in relevant water supply zones, while protecting the environment over a 25- year period. Includes SEA.	The WRMP may have an effect on some of the other water suppliers WRMPs within the regions. The SEA should include objectives that take into account the objectives and policies from other WRMPs within the region where relevant.
United Utilities (2009) Final Water Resources Management Plan 2010-2035.	
United Utilities' statutory WRMP under the Water Act, 2003. Sets out plans to manage supply and demand for water in relevant water supply zones, while protecting the environment over a 25- year period. Includes SEA.	The WRMP may have an effect on some of the other water suppliers WRMPs within the regions. The SEA should include objectives that take into account the objectives and policies from other WRMPs within the region where relevant.
Wessex Water (2010) Final Water Resources Management Plan 2010-2035.	
Wessex Water's statutory WRMP under the Water Act, 2003. Sets out plans to manage supply and demand for water in relevant water supply zones, while protecting the environment over a 25- year period. Includes SEA. The WRMP is based around the following four core policies: • better integrating our water supply network to improve the security of supply • encouraging customers to be more efficient in their use of water • protecting the quality of our water supplies by working with farmers and Environment Agency • accelerating the introduction of metering.	The WRMP may have an effect on some of the other water suppliers WRMPs within the regions. The SEA should include objectives that take into account the objectives and policies from other WRMPs within the region where relevant.

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
Dyr Cymru Welsh Water (2011) Revised Draft Water Resources Management Plan 2010-2035	
Welsh Water' statutory WRMP under the Water Act, 2003. Sets out plans to manage supply and demand for water in relevant water supply zones, while protecting the environment over a 25- year period. Includes SEA and HRA. The 2009 draft WRMP was revised to incorporate assessment against the Habitats Directive and updated climate change predictions. The key elements of the overall strategy can be summarised as follows: • Leakage reduction at current levels • Promotion of a wide range of water efficiency activities for both our domestic and business customers • Installation of water meters at all new properties and those households who opt to be metered • For Pembrokeshire, where the deficit has been driven by the potential impacts of climate change and the significant impact of sustainability reductions being proposed by the Environment Agency, reinstatement of a currently licence-exempt groundwater source and carry out a network scheme that will enhance the connectivity of the zone. This is the most economic solution for the zone; • In the Brecon – Portis water resource zone where the Environment Agency wants us to reduce our abstractions from the River Usk at Brecon supplement the available flow in the river with additional releases from the Usk reservoir, when required; • In the South East Wales Conjunctive Use System zone, where the effects of the Agency"s review of our abstractions on the protected habitats in the Wye and the Usk must be addressed, plus the effects of climate change on Deployable Output. DCWW plan to reinstate two reservoirs that have not been used for public water supply for some time, namely Wentwood and Grwyne Fawr, and to build new treatment works for both sources.	The WRMP may have an effect on some of the other water suppliers WRMPs within the regions. The SEA should include objectives that take into account the objectives and policies from other WRMPs within the region where relevant.
Environment Agency (2015) Anglian River Basin District: River Basin Management Plan (updated 2015)	
Updated as 2009 plans superseded by 2015 plans. • Reference is made to the environmental objectives of the WFD are: • To prevent deterioration of the status of surface waters and groundwater; • To achieve objectives and standards for protected areas; • To aim to achieve good status for all water bodies or, for heavily modified water bodies and artificial water bodies, good ecological potential and good surface water chemical status; • To reverse any significant and sustained upward trends in pollutant concentrations in groundwater; • The cessation of discharges, emissions and loses of priority hazardous substances into surface waters; • Progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants. Environmental objectives are set for each of the protected areas and water bodies in the river basin district.	The WRMP may have an effect on some of the Severn RBMP objectives. The SEA should include objectives that take into account the objectives of the Severn RBMP where relevant.

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
Environment Agency (2015) Humber River Basin District: River Basin Management Plan (updated 2015)	
Updated as 2009 plans superseded by 2015 plans. Reference is made to the environmental objectives of the WFD are: • To prevent deterioration of the status of surface waters and groundwater; • To achieve objectives and standards for protected areas; • To aim to achieve good status for all water bodies or, for heavily modified water bodies and artificial water bodies, good ecological potential and good surface water chemical status; • To reverse any significant and sustained upward trends in pollutant concentrations in groundwater; • The cessation of discharges, emissions and loses of priority hazardous substances into surface waters; • Progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants. Environmental objectives are set for each of the protected areas and water bodies in the river basin district.	The WRMP may have an effect on some of the Humber RBMP objectives. The SEA should include objectives that take into account the objectives of the Humber RBMP where relevant.
Environment Agency and Natural Resources Wales (2016) Severn River Basin District: Flood Risk Management Plan 2015-2021	
Updated as 2009 plans superseded by 2015 plans. Reference is made to the environmental objectives of the WFD are: • To prevent deterioration of the status of surface waters and groundwater; • To achieve objectives and standards for protected areas; • To aim to achieve good status for all water bodies or, for heavily modified water bodies and artificial water bodies, good ecological potential and good surface water chemical status; • To reverse any significant and sustained upward trends in pollutant concentrations in groundwater; • The cessation of discharges, emissions and loses of priority hazardous substances into surface waters; • Progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants. Environmental objectives are set for each of the protected areas and water bodies in the river basin district.	The WRMP may have an effect on some of the flood risk management plan objectives. The SEA should include objectives that take into account the objectives where relevant.
Environment Agency Catchment Abstraction Management Strategies (CAMS)	
CAMS is the approach used by the Environment Agency to assess the amount of water available for further abstraction licensing taking account of the needs of the environment. The relevant Catchment Abstraction Management Strategies (CAMS) are: STW assessment area: • Soar CAMS • Lower Trent and Erewash CAMS (replaced Trent Corridor CAMS) • Dove CAMS (abstraction from the Dove is used to supply the East Midlands) • Idle and Torne CAMS • Derbyshire and Derwent CAMS • Tame, Anker and Mease CAMS • Worcestershire Middle Severn CAMS	The WRMP could affect issues identified within in the individual CAMS within the area. The SEA will include objectives that ensure that the effect of the WRMP on the CAMS issues are assessed.

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
• Wye CAMS • Severn Vale CAMS • Wye CAMS • Shropshire Middle Severn CAMS • Severn Uplands CAMS • Warwickshire Avon CAMS • Worcestershire Middle Severn CAMS • Severn Corridor CAMS • Shropshire Middle Severn CAMS • Teme CAMS • Shropshire Middle Severn CAMS • Staffordshire Trent Valley CAMS • Dove CAMS • Weaver and Dane CAMS • Meirionnydd CAMS • Dee CAMS • Welland CAMS • Little Avon • Cotswolds • Don and Rother CAMS. The aims of the CAMS are to: • make information on water resource availability and the catchment licensing strategy more readily available • provide a consistent and structured approach to local water resource management • recognise both the abstractor's reasonable need for water and environmental needs • provide mechanisms to assess water resources availability • provide results which ensure the relevant Water Framework Directive objectives are met • provide tools to aid licensing decisions – particularly management of time limited licences.	
Peak District National Park Authority (2006) 2006 - 2011 Management Plan	
The Management Plan provides the overarching strategic direction for the future of the National Park, providing a framework for sustainable development to enable enjoyment of the National Park by everyone. The Management Plan is based around the following two underpinning principles: • Working in partnership with the local community to achieve the aims of the Management Plan. • Achieve the aims of the Management Plan through sustainable means.	The WRMP may have the potential to affect several of the principles for managing the Peak District National Park. The SEA will include objectives that take into account the principles of the Peak District National Park management where relevant (e.g. climate change, landscape character, geology, historic features, habitats and biological diversity and opportunities for people to and explore the area.

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
Shropshire Hills Area of Outstanding Natural Beauty (2014) Management Plan 2014 to 2019	
Six delivery priorities have been established for the plan period: • Joining up the conservation effort; • Valuing the AONB in planning and decisions; • Encouraging a sustainable land management economy; • Supporting enjoyment and a visitor economy in harmony with the AONB; • Raising awareness and participation, especially among young people; • Local working with communities.	The WRMP operation may have the potential to affect the objectives for managing the Shropshire Hills AONB. The SEA should include objectives that take into account the objectives of the Shropshire Hills AONB management where relevant.
Snowdonia National Park, Snowdonia National Park Management Plan 2010 - 2015	
This sets out the vision for the condition of the national park by 2035. To achieve this vision, aims to be facilitated by the National Park and its partners include: • A rich and varied landscape, exemplifying aesthetic qualities and notable regional landscape characters. Deliver a landscape responsive to climate change. • A hub in the regional ecological framework, essential for National Park and surroundings to adapt to climate change. To include enhancement of designated sites under UK and European legislation. • Recreational opportunities for residents and visitors. These activities are not to harm the special qualities and effective management to provide opportunities for those wishing to improve their health and wellbeing. • Cultural heritage that is better protected and understood. • A varied and robust economy founded on environmental goods and services.	The WRMP operation may have the potential to affect the objectives for managing the Snowdonia National Park. The SEA should include objectives that take into account the objectives of the Snowdonia National Park management where relevant.
Malvern Hills AONB (2009) Management Plan 2009 -2014	
The Countryside and Rights of Way Act (2000) placed a statutory duty on AONB local authorities to produce and review Management Plans that will formulate their policy for the management of the area. The plan is structured around the two statutory purposes of conserving and enhancing the natural beauty of the AONB and improving the understanding and enjoyment of the special qualities of the Malvern Hills. The plan is based around the following four key issues: • Integrated management of the AONB to provide sustainability in terms of the local environmental, social and economic issues. • Continued use of sensitive rural land management methods to maintain the character of the AONB and promote biodiversity. • Management of the AONB to reduce Co2 emissions and enhance adaptability to future climate change. • Raise awareness of the AONB.	The WRMP may have the potential to affect several of the principles for managing the Malvern Hills AONB. The SEA will include objectives that take into account the principles of the Malvern Hills AONB management where relevant (e.g. climate change, landscape character, geology, historic features, habitats and biological diversity and opportunities for people to and explore the area.
Wye Valley AONB (2010) Management Plan 2009 - 2014	
The Countryside and Rights of Way Act (2000) placed a statutory duty on AONB local authorities to produce and review Management Plans that will formulate their policy for the management of the area. The plan is structured around the two statutory purposes of conserving and	The WRMP may have the potential to affect several of the principles for managing the Wye Valley AONB. The SEA will

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
enhancing the natural beauty of the AONB and improving the understanding and enjoyment of the special qualities of the Wye Valley. The Management Plan is based around the following four guiding principles: • Manage the changing demands placed upon the landscape to provide ecosystem services at the same time as preserving the valued features of the Wye Valley. • Manage the Wye Valley in a sustainable manner, balancing the environmental, social and economic issues of the local area. • Manage the Wye Valley in partnership with the local community to provide benefit for all. • Share with the global community the lessons learnt in managing the Wye Valley AONB.	include objectives that take into account the principles of the Wye Valley AONB management where relevant (e.g. climate change, landscape character, geology, historic features, habitats and biological diversity and opportunities for people to and explore the area.
Other Water Company WRMPs	
Other water company WRMPs under the Water Act, 2003 set out plans to manage supply and demand for water in relevant water supply zones, while protecting the environment over a 25- year period. Water companies that border Severn Trent Water's assessment area are: • Anglian Water • Thames Water • Yorkshire Water • Welsh Water • South Staffordshire Water • Dee Valley Water • Wessex Water • Bristol Water	The WRMP should not conflict with the other water company operations and should consider the potential for trading/sharing of resource. The SEA should identify the potential for cumulative effects with other water company WRMPs.
National	
Ancient Monuments and Archaeological Areas Act 1979 (updated by Historic Environment (Wales) Act 2016 – see below)	
This act addresses the protection of scheduled monuments including the control of works affecting scheduled monuments. It also addresses archaeological areas.	The WRMP and SEA should take account of the need to protect scheduled monuments and archaeological areas.
Cadw, CCW and ICOMOS (UK) (International Council on Monuments and Sites) (2001), Register of Landscapes of Historic Importance	
Two-volume Register of Landscapes of Historic Interest in Wales. This advisory and non-statutory document highlights what are considered the best examples of different types of historic landscape in Wales and was the first step towards raising the profile of historic landscapes in Wales.	The WRMP and SEA should consider and take account of any potential impacts to heritage landscapes and assets in Wales.
Cadw (2013) Historic Environment Strategy for Wales	
The strategy includes the way in which historic environment assets are valued and used and a commitment to a set of Conservation Principles that advocate sustainable management of the historic environment and provides a framework for articulating the values of heritage sites so that they can be fully understood, protected and sensitively managed. Actions are identified in the separate Headline Action Plan (2013).	The WRMP and SEA should consider and take account of any potential impacts to heritage landscapes and assets in Wales.

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
The Climate Change Act (2008)	
The Climate Change Bill was introduced into Parliament in November 2007 and became law on the 26th of November 2008. The Act sets ambitious, legally binding targets and takes powers to help meet those targets. Key provisions of the Act include: • a legally binding target of an 80% cut in greenhouse gas emissions by 2050. Also a reduction in emissions of at least 34% by 2020. Both targets are against a 1990 baseline. • a carbon budgeting system	The WRMP should consider future climate change and include provisions to reduce greenhouse gas emissions to help meet the targets.
The Conservation of Habitats and Species Regulations (as amended by the Conservation of Habitats and Species (Amendment) Regulations 2011 and 2012)	
Updated legislation transposing the Habitats Directive into national law. Consolidates all the many amendments that have been made to the Regulations since they were first introduced in 1994.	See under Habitats Directive
The Countryside and Rights of Way (CRoW) Act, 2000	
The Act provides for increased public access to the countryside and strengthens protection for wildlife. The main provisions of the Act are as follows: • Extends the public's ability to enjoy the countryside whilst also providing safeguards for landowners and occupiers • Creates new statutory right of access to open country and registered common Land Use Consultants • Modernises Right of Way system • Gives greater protection to SSSIs • Provides better management arrangements for AONBs • Strengthens wildlife enforcement legislation.	The WRMP may have an effect on public access to the countryside. The SEA should include objectives that take into account public access, protection of SSSIs and the management of relevant landscape designations.
Countryside Council for Wales (CCW) (2003) Priority Habitats of Wales	
Gives information about Wales' priority habitats, as identified by UK Biodiversity Action Plans.	The WRMP and SEA objectives will need to consider the protection of priority habitats.
Countryside Council for Wales, English Nature, Environment Agency, Royal Society for the Protection of Birds (2004) Strategic Environmental Assessment and Biodiversity: Guidance for Practitioners	
The guidance aims to ensure that biodiversity considerations are appropriately addressed in Strategic environmental assessments. It is hoped that it will assist people and organisations in England, Wales, Scotland and Northern Ireland to prepare plans and programmes in a wide range of sectors, carry out SEA, prepare SEA reports, and comment on biodiversity issues in SEA.	The WRMP and SEA objectives will need to address any biodiversity issues that could result from the WRMP.
Department of Communities and Local Government (2012) National Planning Policy Framework	
The NPPF sets out the Government's planning policies for England and replaces most former planning policy in England. It constitutes guidance for local planning authorities and decision-takers both in drawing up plans and as a material consideration in determining applications. At the heart of the National Planning Policy Framework is a presumption in favour of	The WRMP must consider the NPPF and the SEA must ensure the NPPF is reflected in an integrated way.

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
sustainable development. However, where Appropriate Assessment under the Habitats Regulations is required but incomplete, development would be presumed against, i.e. the 'presumption in favour of sustainable development' is not applicable where proposed developments affect European sites. It presents guidance under broad themes, which include Promoting healthy communities; Protecting Greenbelt Land; Meeting the challenge of climate change, flooding and coastal change; Conserving and enhancing the natural environment; Conserving and enhancing the historic environment. The NPPF identifies a set of core land-use planning principles that should underpin both plan-making and decision-taking under the planning system which include: • Contribute to conserving and enhancing the natural environment and reducing pollution. Allocations of land for development should prefer land of lesser environmental value, where consistent with other policies in this Framework; • Refusing an application where significant harm resulting from the development cannot be avoided, mitigated or compensated. • Unless the benefits outweigh the impacts development on land within or outside a Site of Special Scientific Interest that is likely to have an adverse effect on the site should not be permitted. • Permitting development where the primary objective is to conserve or enhance biodiversity. • Ensuring that Special Protection Areas and possible Special Areas of Conservation, listed or proposed Ramsar sites, and sites identified, or required, as compensatory measures for adverse effects on European sites are given the same level of protection as European sites. • Promote mixed use developments, and encourage multiple benefits from the use of land in urban and rural areas, recognising that some open land can perform many functions (such as for wildlife, recreation, flood risk mitigation, carbon storage, or food production); • Support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change, and encourage the reuse of existing resources, including conversion of existing buildings, and encourage the use of renewable resources (for example, by the development of renewable energy); • Take account of the different roles and character of different areas, promoting the vitality of our main urban areas, protecting the Green Belts around them, recognising the intrinsic character and beauty of the countryside and supporting thriving rural communities within it; • 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; • Conserve heritage assets in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life of this and future generations; • Take account of and support local strategies to improve health, social and cultural wellbeing for all, and deliver sufficient community and cultural facilities and services to meet local needs.	
Department for Culture, Media and Sport (2001) The Historic Environment – A Force for the Future	
This strategy outlines the Governments policy regarding the historic environment. The strategy has key aims and objectives that demonstrate	The implementation of the WRMP may have an influence on the heritage of the region. The SEA should seek to ensure

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
the contribution the historic environment makes to the country's economic and social well-being.	any adverse effects on heritage assets are minimised or avoided.
Department for Energy and Climate Change (2007) Energy White Paper: Meeting the Energy Challenge	
'Meeting the energy challenge', sets our international and domestic energy strategy, in the shape of four policy goals: • aiming to cut CO2 emissions by some 60% by about 2050, with real progress by 2020 • maintaining the reliability of energy supplies • promoting competitive markets in the UK and beyond • ensuring every home is heated adequately and affordably.	The implementation of the WRMP may have an influence upon Severn Trent Water'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.
Department for Energy and Climate Change (2009) UK Renewable Energy Strategy	
Sets out how the use of renewable electricity, heat and transport will be increased and how the target of 15% of energy is from renewable sources by 2020.	The implementation of the WRMP may have an influence upon Severn Trent Water's total energy use. The SEA should seek to promote the use of renewable energy.
Department of energy and climate change, Planning our electric future: a White Paper for secure, affordable and low carbon electricity (2011)	
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.	The implementation of the WRMP may have an influence upon Severn Trent Water'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.
Defra (2011) Government Review of Waste Policy in England 2011	
The review is guided by the "waste hierarchy", EU obligations and targets on waste management, carbon impacts, environmental objectives and the costs and benefits of different policy options. The Governments vision include a move beyond the current throwaway society to a "zero waste economy" in which material resources are re-used, recycled or recovered wherever possible, and only disposed of as the option of very last resort.	The WRMP may involve options that involve the generation of waste (e.g. either through construction requirements or operation of supply side options). The SEA should seek to enhance recycling and minimise the amount of waste going to landfill.
Defra (2011) Water for Life -Water White Paper	
The Water White Paper describes the Governments intentions to take forward a catchment-based approach to water quality and diffuse	The Water Paper was a key document outlying a new

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
pollution and work towards Common Agricultural Policy reforms that will promote the farming industry's role as custodian of the natural environment. The Water White Paper also identifies that the strategic policy statement for Ofwat and revised social and environmental guidance will give a strong steer on Government support for approaches that offer good value for customers and the potential to prevent and manage future risks to drinking water quality. Key reforms are identified as: • Introduce a reformed water abstraction regime • Changes to deal with the legacy of over-abstraction of our rivers; • Re-affirm the catchment approach to dealing with water quality and wider environmental issues; • Remove barriers to the greater trading of abstraction licences and bulk supplies of water to make our supply system more flexible; • With the Environment Agency and Ofwat provide clearer guidance to water companies on planning for the long-term, and keeping demand down; • Consult on the introduction of national standards and a new planning approval system for sustainable drainage; • Address the historical unfairness of high bills in the South West; • Encourage water companies to introduce social tariffs to support vulnerable customers.	approach to water management. The policy has evolved since 2011 and the recent 2016 Defra guiding principles (see below) on water resources planning sets out the key issues for companies to consider in WRMPs for 2019. The WRMP and SEA must reflect the reforms and messages in the Water White Paper and subsequent water policy developments. For example, WRMPs should ensure that water abstraction proceeds on a sustainable basis, enable catchment management objectives for the water environment and encourage customers to use water efficiently.
Defra (2012) The UK Climate Change Risk Assessment 2012 Evidence Report	
Draws together and interprets the evidence gathered by CCRA regarding current and future threats and opportunities for the UK posed by the impacts of climate change up until 2100. Findings of the assessment include: • Increasing pressure on the UK's water resources due to changes in hydrological conditions, population growth and regulatory requirements to maintain good ecological status. • Increases in water demand for irrigation of crops. • Lower summer rivers flows across the UK due to warming and drying conditions. • An increase in precipitation in winter months due to a combination of greater depths and more frequent heavy rainfall events - suggesting larger volumes of runoff with potential negative impacts on flood risk and sewer overflows in urban environments. • Flash-flooding associated releases from combined sewer overflows (CSO) could in turn increase associated illnesses at the coast due to the varying occurrence of microbial pathogens in the marine environment.	The WRMP is closely linked to some of the impacts of climate change and can also influence the magnitude of such impacts. The SEA should seek to ensure that the WRMP considers the findings of the CCRA as part of WRMP formulation and selection of options.
Defra (2011) The Natural Choice: securing the value of nature. The Natural Environment White Paper	

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
Addresses the Government's approach to valuing economic and social benefits of a healthy natural environment while continuing to recognise nature's intrinsic value. It describes the vision of the Government for this to be the first generation to leave the natural environment of England in a better state than it inherited, requiring placing the value of nature at the heart of decision-making – in Government, local communities and businesses. Approaches to mainstream the value of nature across society include: • facilitating greater local action to protect and improve nature; • enhance habitat and ecosystem connectivity, reduce pressures on natural systems limits and capacities to better allow provision of ecosystem services • creating a green economy, in which economic growth and the health of our natural resources sustain each other, and markets, business and Government better reflect the value of nature; • strengthening the connections between people and nature to the benefit of both; and • showing leadership in the European Union and internationally, to protect and enhance natural assets globally	The WRMP supports the provisioning service of freshwater through ensuring security of supply. Other related ecosystem services may include: • Provisioning Services: Biodiversity • Regulating Services: Water Regulation • Cultural services: Recreation and ecotourism • Cultural services: Cultural heritage values • Cultural services: Aesthetic The SEA should ensure the WRMP effects the related provisioning services in the least damaging way through informing the WRMP formulation and selection of options. The SEA should ensure the WRMP maintains, and where possible enhances and enables connectivity of habitats and ecosystems and respects environmental limits and capacities.
Defra (2010) Delivering a Healthy Natural Environment. Ecosystem Approach Action Plan (updated)	
The Ecosystem Approach Action Plan (EAAP) highlights that taking an ecosystems approach can help deliver our natural environment outcomes more effectively and efficiently and to help society make better informed decisions about how to balance economic, environmental and social objectives in pursuit of sustainable development.	The SEA should ensure the WRMP effects the related provisioning services in the least damaging way through informing the WRMP formulation and selection of options.
Defra (2010) Making Space for Nature: A Review of England's Wildlife Sites and Ecological Network	
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.	The WRMP should seek to maintain or enhance the quality of habitats and biodiversity.
Defra (2009) Safeguarding our soils – A Strategy for England	
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.	Some options in the WRMP could affect soils through either construction or operation. The SEA should seek to ensure that the quality of the regions soils and their management is protected or enhanced.

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
The Governments 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.	
Defra (2015) The Great Britain Invasive Non-native Species Strategy	
The Strategy is intended to provide a strategic framework, updated from the 2008 framework, within which the actions of government departments, their related bodies and key stakeholders can be better co-ordinated. Its overall aim is to minimise the risks posed, and reduce the negative impacts caused, by invasive non-native species in Great Britain.	Some options in the WRMP could influence the negative impacts caused by invasive non-native species in the region. The SEA should seek to ensure that options within the WRMP do not increase the risks posed or impacts caused by invasive non-native species.
The Eels (England and Wales) Regulations 2009	
Implements European Council Regulations 1100/2007 establishing measures for the recovery of the stock of European eel. The Regulations will help implement delivery Eel Management Plans. They address eel records and re-stocking, close season and reduction of fishing effort, passage of eels and entrainment. The key objective is to ensure that at least 40% of the potential production of silver eels returns to the sea to spawn. This will be achieved by reducing exploitation of all life-stages of the eel and restoration of their habitats.	The SEA should take account of the relevant provisions of these Regulations as they may apply to measures being considered in formulation of the Drought Plan.
Defra (2008) Future Water: the Government's water strategy for England	
This strategy is the high level Government document that outlines how the Government wants the water sector to look by 2030, considering issues of water demand, water supply and water quality in the natural environment, surface water drainage, river and coastal flooding, greenhouse gas emissions and charging. The Strategy states that "by 2030 at the latest, we have: • Improved the quality of our water environment and the ecology that it supports, and continued to provide high levels of drinking water quality from our taps. • Sustainably managed risks from flooding and coastal erosion, with greater understanding and more effective management of surface water. • Ensured a sustainable use of water resources, and implemented fair, affordable and cost-reflective charges".	The aims of the strategy and the WRMP are closely linked. The WRMP must consider the aims of the strategy. The SEA should seek to ensure that the themes included in the strategy objectives are also reflected in the SEA objectives, particularly around water quality in the region, the quality of aquatic ecology, drinking water quality, resource use, energy use and greenhouse gas emissions, and adaptation to climate change.
Defra (2007) The Air Quality Strategy for England, Scotland and Wales	
This latest strategy does not remove any of the objectives set out in the previous strategy (see below) or its addendum, apart from replacing the provisional 2010 PM_{10} objective in England, Wales and Northern Ireland with the exposure reduction approach. The strategy introduces a new ozone objective to protect ecosystems, in line with the EU target value set out in the Third Daughter Directive.	The implementation of the WRMP may have some influence on air quality, either directly or indirectly through construction or operation activities. The WRMP and SEA should seek to ensure that limit values for air pollutants are not exceeded and pollutant

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
	emissions are reduced during the plan period.
Defra 2011 UK National Ecosystem Assessment and Defra, 2014, UK National Ecosystems Assessment Follow on, Synthesis of Key Findings	
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.	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 key questions for example: • Provisioning Services: Freshwater • Provisioning Services: Biodiversity • Regulating Services: Water Regulation • Cultural services: Recreation and ecotourism • Cultural services: Cultural heritage values • Cultural services: Aesthetic The SEA should ensure the WRMP affects the related provisioning services in the least damaging way through informing the WRMP formulation. 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).
Defra (2011) Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services	
The strategy builds on the Natural Environment White Paper, which highlighted the need to properly value nature, following the strong economic arguments for safeguarding and enhancing the natural environment presented in the UK National Ecosystem Assessment. Sets out the Government's ambition to halt overall loss of England's biodiversity by 2020, and in the longer term to move progressively from a position of net biodiversity loss to net gain. Includes as a Priority Action: 'Reform the water abstraction regime. The new regime will provide clearer signals to abstractors to make the necessary investments to meet water needs and protect ecosystem functioning. We will also take steps to tackle the legacy of unsustainable abstraction more efficiently.'	The WRMP should consider the aims of the strategy and the SEA should ensure those aims are effectively integrated. Sustainable abstraction will be fundamental to the WRMP.

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
Defra (2008), England Biodiversity Strategy –climate change adaptation principles	
Government strategy presenting five principles that are fundamental to conserving biodiversity during climate change. The precautionary principle underlies all the principles.	The WRMP must consider the impacts on biodiversity whilst also taking into account the potential for future climate change.
Defra (2005) Making space for water: taking forward a new government strategy for flood and coastal erosion risk management in England	
The strategy outlines how to manage the risks from flooding and coastal erosion in the UK. The strategy aims 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.	The WRMP must consider the impacts on flooding. The SEA should seek to ensure that the WRMP delivers the greatest environmental and social benefit.
Defra (2005) Securing the Future: Delivering UK Sustainable Development Strategy	
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.
Defra (2004) The First Soil Action Plan for England	
This plan is a comprehensive statement on the state of the UK's soils and how Government and other partners were working together to improve them. Ensure that England's soils will be protected and managed to optimise the varied functions that soils perform for society (e.g. supporting agriculture and forestry, protecting cultural heritage, supporting biodiversity, as a platform for construction) in keeping with the principles of sustainable development.	Some options in the WRMP have the potential to effect soils. The SEA should seek to ensure that the quality of the region's land, including soils, is protected or enhanced.
Defra (2004) Rural Strategy	
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.	Certain WRMP options may have an effect upon rural communities and the countryside. The SEA should also seek to ensure that the quality of the region's landscapes, natural resources and biodiversity are maintained or enhanced.
Defra (2006) Sustainable Farming and Food Strategy: Forward Look	

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
Forward Look builds on the Sustainable Farming and Food Strategy (SFFS) published in December 2002. It sets out the Government's priorities for delivering a sustainable farming and food sector.	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.
Defra (2013) The National Adaptation Programme: Making the country resilient to a changing climate	
This contains a number of objectives and actions under the headings of built environment, infrastructure, healthy and resilient communities, agriculture and forestry, natural environment, business and local government. Flooding and pressure on water services are considered to be cross cutting risks that are important to each chapter.	The SEA should consider the potential to include adaptive measures for climate change.
Defra (2015) The government's response to the Natural Capital Committee's third State of Natural Capital report	
This provides a number of recommendations such as: • 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. • Assigning institutional responsibility for monitoring the state of natural capital. • Organisations that manage land and water assets should create a register of natural capital for which they are responsible.	Outputs from the SEA process will help to inform any future potential development by Severn Trent 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.
Defra and Welsh Government (2014) River Basin Planning Guidance	
This sets out the principles of river basin management planning: • Encourage active involvement of a broad cross section of stakeholders and enable the exchange of knowledge (including information and data) between regulators, planners, stakeholders and the research community. • Set out and communicate in a clear, transparent and accessible process of analysis and decision-making. • Focus at the river basin district level. • Work in partnership with other public bodies. • Integrate and streamline plans and processes. • Make use of the alternative objectives to bring about sustainable development. • Use Better Regulation principles and consider the cost-effectiveness of the full range of possible measures and mechanisms. • Seek to be even handed across different sectors of society and sectors of industry.	The WRMP will need to ensure that it is consistent with the principles of river basin management plans and that it does not adversely affect the issues identified as significant water management issues.

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
• Seek to be even handed and transparent in the management of uncertainty. • Develop methodologies and refine analyses as more information becomes available.	
Defra (2016) Guiding principles for water resources planning for water companies operating wholly or mainly in England	
This identifies the key policy priorities to be addressed in WRMPs. This includes protecting and enhancing the environment and the promotion of efficient water use and reducing leakage.	The WRMP and SEA needs to take account of this guidance.
Defra, Environment Agency, Natural England, Forestry Commission England (2016) Creating a great place for living	
Strategic objectives include: • Environment: a cleaner, healthier environment, benefitting 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.	The WRMP and SEA needs to take account of these objectives.
The Energy Act 2013	
This provides the legislative framework for delivering secure, affordable and low carbon energy. It includes provisions for decarbonisation,	The implementation of the WRMP may have an influence upon Severn Trent Water'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.
English Heritage (2010), Heritage at Risk	
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. Heritage at Risk Registers were most recently published in 2015.	The SEA should seek to protect and enhance heritage and landscape.
English Heritage (2008), Climate Change and the Historic Environment	
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.

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
Environment Act, 1995	
The Environment Act set up the Environment Agency to manage resources and protect the environment in England and Wales	The WRMP may have an effect on resources and the environment. The SEA should seek to promote the protection and enhancement of all water resources without having negative effects on other aspects of the Environment.
Environment Agency (2011) National Flood and Coastal Risk Management Strategy for England	
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.	The WRMP must consider potential effects to flood risk. The SEA should seek to ensure that flood risk in the region is not adversely affected by the implementation of the WRMP.
Environment Agency (2014) Corporate Plan 2014 – 2016	
This sets out the EA's priorities for the environment between 2014 and 2016. Priority areas include: • A changing climate • Increasing the resilience of people, property and businesses to the risks of flooding and coastal erosion • Protecting and improving water, land and biodiversity	There is considerable links between the core themes of the strategy and the WRMP. The SEA should seek to ensure that priorities are also reflected in the SEA objectives particularly regarding the protection and improvement of water, land and biodiversity.
Environment Agency (2010) Water Resources Action Plan for England and Wales	
The strategy has four main aims: • 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.	There is considerable links between the core themes of the strategy and the WRMP. 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.
Environment Agency (2009) Water Resources Strategy for England and Wales	
This is the national Environment Agency strategy for water resource management in the long term. It looks to 2050 and considers the impacts of climate change, the water environment, water resource and valuing water. Aims and objectives include: • Ensure water is used efficiently in homes and buildings, and by industry and agriculture • Provide greater incentives for water companies and individuals to manage demand	There is considerable links between the core themes of the strategy and the WRMP. The SEA should seek to ensure that strategy objectives are also reflected in the SEA objectives, particularly around water resource use and availability in the region.

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
• Share existing water resources more effectively	
Environment Agency (2015) Creating a Better Place: Environment Agency Corporate Strategy 2014-2016	
The strategy sets out the EA's ambitions for the environment between 2014 and 2016. Priority areas include: • A changing climate • Increasing the resilience of people, property and businesses to the risks of flooding and coastal erosion • Protecting and improving water, land and biodiversity • Improving the way the EA works as a regulator to protect people and the environment and support sustainable growth	There is considerable links between the core themes of the strategy and the WRMP. The SEA should seek to maintain, protect and improve water quality across the region and ensure efficient use of resources. The SEA should seek to ensure that strategy objectives are also reflected in the SEA objectives particularly regarding the protection and improvement of water, land and biodiversity.
Environment Agency (2007) Soil a precious resource: Strategy for protecting, managing and restoring soil	
Looking after soil is central to achieving the Environment Agency's vision and involves the following : • Protect people and wildlife by preventing the build-up of harmful substances in soil • Protect water, air and soil from pollution by promoting good soil management • Protect people from flooding by encouraging land management practices which slow the rate at which water reaches the rivers • Support the clean-up of damaged soil to prevent harm to people, wildlife and the environment • Improve our understanding of soil so we can make better decisions about how to protect people and the environment.	Some options in the WRMP may affect the soil resource. The SEA should seek to ensure that the quality of the regions soils and their management is protected or enhanced.
Environment Agency (2013) Managing Water Abstraction	
The strategy sets out the EA's ambitions for the environment between 2014 and 2016. Priority areas include: • A changing climate • Increasing the resilience of people, property and businesses to the risks of flooding and coastal erosion • Protecting and improving water, land and biodiversity • Improving the way the EA works as a regulator to protect people and the environment and support sustainable growth	There is a direct link between the water availability in the region and the WRMP. The SEA should consider the range of impacts that changes to abstractions could have on the environment, including waterbodies, biodiversity, and water users.
Environment Agency (1999) Restoring Sustainable Abstraction Programme	
Investigative programme to identify sites at risk of environmental damage from abstraction licences. The RSA programme is a way of prioritising and progressively examining and resolving these concerns. Environment Agency investigation of designated sites (Natura 2000, SSSI, Local Nature Reserves (LNR)) potentially at risk – leading to proposals for licence amendment for sustainable abstraction.	There is a direct link between the RSA programme and the WRMP. The SEA should take into account those sites that have been identified by the RSA as being at risk from environmental damage from abstraction

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
	licences and assess the implications of the WRMP.
Environment Agency (undated) WFD River Basin Characterisation Project: Technical Assessment Method - River abstraction and flow regulation	
This paper describes the method used to assess the likelihood of river waterbodies 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.
Environment Agency (undated) Hydroecology: Integration for modern regulation	
This paper describes clear way forward in terms of hydroecology and a strategic direction to its development and application.	The WRMP and SEA should ensure relevant ecological considerations are integral to water resource evaluation and management decisions across the range of temporal and spatial scales.
Environment Agency and other lead authorities, Shoreline Management Plans	
A large-scale assessment of the risks associated with coastal processes with the aim to help reduce these risks to people and the developed, historic and natural environments. Coastal processes include tidal patterns, wave height, wave direction and the movement of beach and seabed materials. The second generation of Shoreline Management Plans (SMPs) are in production, covering the entire 6000 kilometres of coast in England and Wales. This generation of plans aim to incorporate sea level rise resulting from climate change and current defences with limited life and improvement requirements.	It is unlikely that the WRMP will influence coastal processes.
Environment Agency Wales, Salmon Action Plans	
The Environment Agency Wales has prepared a series of action plans, based on river catchments, setting out what needs to be done to support and restore salmon populations. A total of 63 plans were being prepared for salmon rivers in England and Wales by 2002 as part of the Agency's National Salmon Management Strategy. The Plans identify and cost a series of actions designed to help safeguard and improve Salmon populations.	The WRMP has the potential to influence salmonid waters in the region. The SEA should seek to maintain or enhance the quality of habitats and biodiversity particularly those of Salmon identified in the Action Plans. The SEA will cover fish passage as an element of at least one sustainability objective.
Environment Agency Wales (2009), Water Resources Action Plan	
This action plan for Wales includes the actions the Environment Agency will take to progress towards delivering the aims and objectives of the Water Resource Strategy for Wales. The action plan sets out the initial steps to take towards securing the long-term future of water resources in Wales.	The SEA should seek to ensure that water supplies and resources are maintained or enhanced in line with the Water Resources Strategy for Wales.
Environment (Wales) Act 2016	

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
Key parts of the act are: Part 1: Sustainable management of natural resources – includes preventing significant damage to ecosystems which need to be healthy to withstand increased pressures and demands; Part 2: Climate change – provides powers to put in place statutory emission reduction targets, to include at least an 80% reduction in emissions by 2020 and carbon budgeting; Part 3: Charges for carrier bags; Part 4: Collection and disposal of waste; Parts 5 and 6: Fisheries and shellfish and marine licencing; Part 7: Flood and coastal erosion Committee and land drainage – clarify law for other environmental regulatory regimes such as flood risk management and land drainage.	The SEA should seek to ensure that this new legislation is reflected in the SEA objectives particularly regarding the sustainable management of natural resources and emissions targets.
The Environmental Damage (Prevention and Remediation) (England) Regulations 2015	
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.	The WRMP must consider the guidance provided by the regulations.
Environmental Protection Act 1990	
This act addresses pollution control, waste (including duty of care), contaminated land, statutory nuisance and clean air.	The WRMP and actions arising from it such as construction activities must comply with this act.
Flood and Water Management Act, 2010	
The Flood and Water Management Act 2010 aims to provide better, more comprehensive management of flood risk for people, homes and businesses. It aims improve efficiency in the water industry, improve the affordability of water bills for certain groups and individuals, and help ensure continuity of water supplies to the consumer.	There are direct links between the Flood and Water Management Act 2010 and the WRMP. The SEA should ensure the aims of the Flood and Water Management Act 2010 are reflected in the SEA objectives.
Historic England (2013) Strategic Environmental Assessment, Sustainability Appraisal and the Historic Environment	
Guidance for addressing the historic environment in Strategic Environmental Assessment or Sustainability Appraisal. It identifies the recommended list of plans, programmes and policies for review, approach to baseline review, potential sustainability issues.	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.
Historic England (2015) The Setting of Heritage Assets, Historic Environment Good Practice Advice in Planning 3	

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
This provides advice on the settings of heritage assets in accordance with the NPPF.	The SEA should take into account effects on the setting of heritage assets.
Historic England (2015) Historic Environment Good Practice Advice in Planning Note 3	
This provides guidance on managing change within settings of heritage assets. This includes archaeological remains, historic buildings, sites, areas and landscapes.	The SEA should take into account effects on settings of heritage assets.
Historic Environment (Wales) Act 2016	
This act amends the Ancient Monuments and Archaeological Areas Act 1979 and the Planning (Listed Buildings and Conservation Areas) Act 1990. The act aims to: • Provide more effective protection to listed buildings and scheduled monuments; • Improve the sustainable management of the historic environment; and • Introduce greater transparency and accountability into decisions taken on the historic environment.	The SEA should take into account effects on the historic environment.
HM Treasury (2015) Fixing the Foundations: Creating a More Prosperous Nation	
This report refers to the importance of productivity. The government's framework for raising productivity has two pillars: • Encouraging long term investment in economic capital, including infrastructure, skills and knowledge; • Promoting a dynamic economy that encourages innovation and helps resources flow to their most productive use. A fifteen-point plan for productivity is provided.	The SEA should take into account the need to raise productivity via long-term investment and a dynamic economy.
HM Treasury Infrastructure UK (2014) National Infrastructure Plan	
The Plan focuses on economic infrastructure: the networks and systems in energy, transport, digital communication, flood protection, water and waste management. These are all critical to support economic growth through the expansion of private sector businesses across all regions and industries, to enable competiveness and to improve the quality of life of everyone in the UK. The objectives for the water sector are 'to secure a fair deal for customers while enabling water companies to continue to attract low-cost investment needed to provide the high quality, resilient water services customers want.'	The WRMP could result in the production of additional waste. The SEA should seek to reduce the production of waste and ensure it is treated in line with the widely adopted 'waste hierarchy' and not sent to landfill. The WRMP can contribute to the provision of resilient water services.
Natural England's standing advice on protected species	
This standing advice comprises a number of guides on the following protected species: • Bats • Great crested newts • Badgers • Hazel dormice • Water voles	The SEA should seek to protect protected species and include this in the SEA objectives.

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
• Otters • Wild birds • Reptiles • Protected plants • White-clawed crayfish • Invertebrates • Freshwater fish • Natterjack toads • Ancient woodland and veteran trees	
Natural England (2014) Site Improvement Plans (SIPs) for Natura 2000 Site	
SIPs have been developed for each Natura 2000 site in England. They provide high-level overviews of the issues affecting the condition of the Natura 2000 features on these sites and outlines the priority measures that are needed to improve the condition of the features. SIPs are live documents.	The SEA should take into account the relevant SIPs for Natura 2000 sites that may be affected by the WRMP and include the conservation and enhancement of designated sites in the SEA objectives.
Natural England National Character Area (NCA) Profiles	
Natural England has defined a series of 120 National Character Areas as a means to conserve nature in England. They are areas of countryside identified by the unique combination of physical attributes, wildlife, land use and culture. Relevant NCAs are identified in appendix B.	The SEA should take account of NCA profiles and include SEA objective relating to the protection of landscape character.
Natural Environment and Rural Communities (NERC) Act, 2006	
This Act makes provision about bodies concerned with the natural environment and rural communities in connection with wildlife, sites of special scientific interest, National Parks and the Broads. The Natural Environment and Rural Communities Act is designed to help achieve a rich and diverse natural environment and thriving rural communities.	The SEA should seek to maintain or enhance the quality of habitats and biodiversity. The impacts of the WRMP on any designated features, as highlighted in the Natural Environment and Rural Communities Act, should be addressed.
Planning (Listed Buildings and Conservation Areas) Act 1990 (updated by Historic Environment (Wales) Act 2016 – see above)	
This addresses listed buildings including prevention of deterioration and damage and preservation and enhancement of conservation areas.	The WRMP and SEA should take account of the need to protect listed buildings and conservation areas.
Salmon and Freshwater Fisheries Act, 1975	
The Act lays down the present basic legal framework within which salmon and freshwater fisheries in England are regulated. Proposals have been made to extend the legislation to apply to more fish species e.g. coarse fish, eel and lamprey species. These proposals are currently under review. The Act covers legislation on fishing methods and related offences, obstructions to fish passage, salmon and freshwater fisheries	The Act provides statutory requirements for maintaining fish passage. The SEA will cover fish passage as an element of at least one sustainability objective. The SEA should seek to address any potential issues

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
administration and law enforcement. Proposed extensions to the legislation (under review) include the provision of fish passes and screening of water abstraction and discharge points for coarse fish, eel and lamprey species.	or effects on existing measures to address fish passage.
The Water Resources Management Plan Regulations 2007	
This provides the legislation for the preparation of water resources management plans.	The WRMP should take account of these requirements.
Water Industry Act 1991 was amended by the commencement of Section 36 of the Flood and Water Management Act 2010	
This makes provision for general duties of water undertakers including those associated with water resources management plans and sets out supply duties.	The WRMP must take into account this legislation.
The Water Act, 2003	
The Water Act 2003 is in three Parts, relating to water resources, regulation of the water industry and other provisions. The four broad aims of the Act are: • The sustainable use of water resources • Strengthening the voice of consumers • A measured increase in competition • The promotion of water conservation	The implementation of the WRMP may have an effect through its role in maintaining supplies of water. The SEA should seek to promote sustainable use of water resources.
The Water Environment (WFD) (England and Wales) Regulations, 2003	
These Regulations make provision for the purpose of implementing in river basin districts within England and Wales The Water Framework Directive (2000/60/EC) of the European Parliament. The Regulations require a new strategic planning process to be established for the purposes of managing, protecting and improving the quality of water resources.	WRMP will need to take account of the regulations. The SEA should seek to promote the protection and enhancement of all water resources. The SEA should seek to maintain, protect and improve water quality across the region and ensure efficient use of resources.
Water Resources Act, 1991 (Amendment) (England and Wales) Regulations 2009 SI3104	
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 watercourse or lake, such as quantity, structure and substrate of river/lake bed. Aligns the Water Resources Act with the hydromorphological requirements of the WFD	The WRMP may affect geomorphological processes. The SEA should include objectives that cover hydromorphological aspects and seek to ensure that hydromorphological features within the plan are maintained or enhanced.
Wildlife and Countryside Act, 1981	
The Act is the principle mechanism for providing legislative protection of wildlife in Great Britain.	Some aspects of the WRMP may have effects on habitats and species in the Severn Trent Water supply area and beyond.

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
Species listed in Schedule 5 of the Act are protected from disturbance, injury, intentional destruction or sale. Other provisions outlaw certain methods of taking or killing listed species. This Act is brought up to date regularly to ensure the most endangered animals are on the schedule. The Act also improved protection for the most important wildlife habitats.	The SEA should ensure the WRMP seeks to maintain or enhance the quality of habitats and biodiversity, and take regard of protected species and habitats.
UKTAG on the WFD e.g. Phase 3 Review of Environmental Standards	
UKTAG prepares technical guidance designed to facilitate consistent implementation of the WFD in the UK. 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.	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 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.
UK Climate Projections UKCP09. UKCIP, 2009	
The UKCP09 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. The methodology gives a measure of the uncertainty in the range of possible outcomes; a major advance beyond previous national scenarios 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.	The WRMP does take account of UKCP09 projections as its formulation through the WRMP process that takes account of climate change in its supply and demand projections. The SEA should also use UKCP09 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.
Environment Agency (undated) WFD River Basin Characterisation Project: Technical Assessment Method - River abstraction and flow regulation	
This paper describes the method used to assess the likelihood of river waterbodies 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.
Environment Agency (undated) Hydroecology: Integration for modern regulation	
This paper describes clear way forward in terms of hydroecology and a strategic direction to its development and application.	The WRMP and SEA should ensure relevant ecological considerations are integral to

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
	water resource evaluation and management decisions across the range of temporal and spatial scales.
Countryside Council for Wales (CCW) (2003) Priority Habitats of Wales	
Gives information about Wales' priority habitats, as identified by UK Biodiversity Action Plans.	The WRMP and SEA objectives will need to consider the protection of priority habitats.
Natural Resources Wales, Drought Plan	
Natural Resources Wales produces a drought plan – it describes indicators used to classify different stages of a drought.	The supply of water resources in the region may be affected by future drought, whilst this is addressed by the separate Drought Plan this is linked closely with the WRMP.
Well-being and Future Generations (Wales) Act 2015	
This puts in place a sustainable development principle and places a well-being duty on public bodies. Public bodies will set and publish well being objectives. There are seven well-being goals: • A prosperous Wales; • A resilient Wales; • A healthier Wales; • A more equal Wales; • A Wales of cohesive communities; • A Wales of vibrant culture and thriving Welsh language; • A globally responsible Wales.	Well being objectives need to be taken into account in the SEA.
Welsh Government, (2015) A Water Strategy for Wales	
This strategy sets out the strategic direction for water policy in Wales for the next 20 years and beyond. Key themes are: • Water for nature, people and business – how quality and quantity of water resources will be sustainably managed, meeting society's needs and offering opportunities for green growth whilst protecting and enhancing the natural environment. • Improving the way we plan and manage our water services – ensuring water services remain robust, sustainable and support high quality services now and in the future. • Delivering excellent services to customers – ensure people and businesses have access to affordable water and sewerage services that are sustainable, safe, secure and dependable. • Protecting and improving drinking water quality – ensuring compliance with the Drinking Water Directive and ensuring that any quality problems are effectively dealt with. • 21st century sewerage and drainage system – both waste water and surface water managed in a sustainable way. • Supporting delivery.	Options in the WRMP are located in Wales. The WRMP should take account of the principles within this report.

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
Under each theme is a range of actions to address the challenges set out in the strategy and to assist in meeting well being goals and sustainable development principle.	
Welsh Assembly Government (2014) National Strategy for Flood and Coastal Erosion Risk Management	
The objectives are: • Reducing the consequences for individuals, communities, businesses and the environment from flooding and coastal erosion. • Raising awareness of and engaging people on flood and coastal erosion risk. • Providing an effective and sustained response to flood and coastal erosion events Prioritising investment in the most at risk categories.	The SEA should seek to ensure that flood risk and coastal erosion in the region is not adversely affected by the implementation of the WRMP and that water supplies across the region are maintained.
Welsh Assembly Government (consultation document 2012), Sustaining a Living Wales: a green paper on a new approach to natural resource management	
This consultation document sought views on proposed changes to the governance and delivery of the management and regulation of the environment in Wales based on the ecosystem approach.	The SEA must consider the impacts of the WRMP on potential water resources. SEA objectives must address issues of biodiversity and nature conservation.
Welsh Assembly Government (2012), State of the Environment Report – Wales	
This bulletin presents an overview of progress against the Welsh Assembly Government's Environment Strategy. It summarises the latest information on the indicators monitoring the progress. The results for individual indicators are presented in a series of electronic reports.	The WRMP must support the commitment to sustainable use of water resources, minimisation of pollution and impact on the environment. The SEA must include targets that will allow the WRMP to be assessed against those set out in the Environment Strategy for Wales.
Welsh Assembly Government GLASTIR - Agri-environment scheme funded under the Rural Development Plan	
Glastir is a sustainable land management scheme, through which farmers and land managers are offered financial support from the Welsh Government and the European Union. Glastir pays for the delivery of specific environmental goods and services aimed at: • combating climate change • improving water management • maintaining and enhancing biodiversity. It is designed to deliver measurable outcomes at both a farm and landscape level in a cost effective way.	The WRMP must support the sustainable management of farm land. SEA objectives should reflect and consider relevant objectives from the Glastir scheme.
Welsh Assembly Government (2008) Wales Spatial Plan	
The Wales Spatial Plan provides the framework for future collaborative action between the Welsh Assembly Government and its partners to achieve sustainable economic growth across the whole of Wales. The	The WRMP should ensure the sustainable management of water resources. SEA objectives should reflect and consider

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
plan emphasises the need for coordinated action at national, regional and local levels. The Spatial plan sets out a range of objectives under five headings: • Building sustainable communities • Promoting a sustainable economy • Valuing our environment • Achieving sustainable accessibility • Respecting distinctiveness	relevant objectives from the Wales Spatial Plan.
Welsh Assembly Government (2009) One Wales: One Planet – a new sustainable development scheme for Wales	
One Wales One Planet sets out proposals to promote sustainable development and how WAG will make sustainable development a reality for people in Wales, and outlines the benefits that people will see from this, particularly in less well-off communities.	The WRMP should consider effects of options on sustainable development in Wales. The SEA should include objectives relating to improving resource efficiency, reducing waste, and encouraging sustainability.
Welsh Assembly Government (2010) Climate Change Strategy for Wales	
Climate Change Strategy and associated Delivery Plans confirm WAG's commitment to tackling issues of future climate change. Strategy addresses: • The vision for 2050, and how this Strategy supports our Sustainable Development Scheme, One Wales: One Planet. • Key target to cut greenhouse gas emissions by 3% per year in areas of devolved competence • Climate change impacts for Wales. • How to tackle Wales's climate vulnerability.	The WRMP does take account of the Climate Change Strategy and its targets as its formulation through the WRMP process takes account of climate change in its supply and demand projections. The SEA should also use the targets 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.
Welsh Assembly Government (2011) Strategic Policy Position Statement on Water	
In March 2009, the first Strategic Policy Position Statement on Water was published. The Policy Statement outlined WAG priorities for water. The Statement contained key issues and actions to be taken. This revised Statement updates the current position. It reflects developments that have happened and highlights future priorities in relation to water policy in Wales.	The WRMP includes options located in Wales. The SEA should seek to promote the protection and enhancement of all water resources. The SEA should seek to maintain, protect and improve water quality across the region and ensure efficient use of resources.
Welsh Assembly Government (2009) Technical Advice Note 5. Nature Conservation and Planning	
The TAN provides advice for local planning authorities on: • The key principles of positive planning for nature conservation; • Nature conservation and Local Development Plans; • Nature conservation in development management procedures; • Development affecting protected internationally and nationally designated sites and habitats;	The WRMP may include schemes which at project planning stage would need to be considered in the light of provisions of TAN 5. The SEA process will assess schemes in the context of the provisions of

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
• Development affecting protected and priority habitats and species.	TAN5, particularly where relevant to protected species and habitats.
Welsh Assembly Government (2010), Technical Advice Note 6: Planning for Sustainable Rural Communities	
Technical Advice Note (TAN) 6 supports national planning policy on sustainable rural communities. This guidance provides advice on: • Sustainable rural communities • Sustainable rural economies • Rural affordable housing • Rural enterprise dwellings • One Planet Developments • Sustainable rural services • Sustainable agriculture	The WRMP must consider the sustainable provision of water and SEA objectives must address issues of sustainability.
Welsh Assembly Government (1997), Technical Advice Note 13: Tourism	
The Technical Advice Note (Wales) (TAN) should be read in conjunction with Planning Guidance (Wales): Planning Policy. Planning Guidance. This TAN provides advice on: • Hotel development; • Holiday and touring caravans; • Seasonal and holiday occupancy conditions.	The SEA must consider relevant planning policy and planning guidance and consider the impacts of the WRMP on potential water resources that are used to provide tourist facilities across the region.
Welsh Assembly Government (2004), Technical Advice Note 15: Development and Flood Risk	
Technical Advice Note (TAN) 15 provides technical guidance that supplements the policy set out in Planning Policy Wales in relation to development and flooding. Advice is given on: • Development advice maps • Nature of development or land use • Justifying the location of built development • Assessing flooding consequences • Surface water run-off from new development • Action through Development Plans • Development Control	The SEA must consider any development or construction that may be required in order to facilitate certain options within the WRMP and any potential changes to flood risk that may occur as a result.
Welsh Assembly Government (2009), Technical Advice Note 16: Sport, Recreation and Open Space	
This revised TAN provides advice for communities, developers and local planning authorities in Wales preparing local development plans and taking decisions about planning applications. The Note contains advice about: • Preparing Open Space Assessments • Keeping existing facilities • The provision of new facilities • Topics related to water based recreation, off- road recreational vehicles, allotments and spaces for children's and young people's play.	The SEA must consider the impacts of the WRMP on potential water resources that are used to provide water based recreational facilities across the region.
Welsh Assembly Government (2006) Environment Strategy for Wales	
Purpose is to provide the framework within which to achieve an environment that is clean, healthy, biologically diverse and valued.	The SEA will ensure that themes of sustainability and environmental value are

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
Focuses on key environmental themes: • Addressing climate change - mitigation and adaptation, including reduced emissions, improved resilience, managing increased flood risk on key assets such as schools, hospitals, housing stock, businesses, land management • Sustainable resource use - covers materials consumption and waste, water, soils, minerals aggregates. Waste generation should be minimised. Reduce, reuse, recycle to become universally accepted. Water resources should be effectively managed. Soil functionality should be recognised, including carbon sequestration and flood risk management. • Distinctive biodiversity landscapes and seascapes - covers biodiversity, the marine environment, landscapes and seascapes, and their historic component. To involve sustainable land/sea use and management to ensure they can support environmental social and economic needs while maintaining ecosystem function. Aim to halt biodiversity loss and recover from losses that have occurred. Focus will include habitat fragmentation effects, and increased habitat extent/connectivity. • Local environment - built environment and access to green space, environmental nuisances, walkability in urban areas and access to the countryside and coast, and flood risk management. Focus on the distinctiveness of buildings in Wales. Recognises the spectrum that must contribute to flood risk management - land management, development control, emergency planning and improved property resilience. • Environmental hazards - pollution, chemicals and radioactivity. Recognises the importance of WFD standards The associated action plan will address impacts of increased flood risk on key assets	considered through the WRMP process.
Welsh Assembly Government (2013) Wales Marine and Fisheries Strategic Action Plan	
This plan aims to provide a framework for clean, healthy, safe, productive and biologically diverse areas.	The SEA must consider the impacts of the WRMP on the marine environment and on fish habitats in order to support the aim of Welsh Assembly Government to support the development of sustainable fisheries.
Welsh Assembly Government (2010), Low Carbon Revolution – The Welsh Assembly Government Energy Policy Statement	
This statement explains what WAG will do and what they want others to do to make the ambition for low carbon energy a reality. Aim will be to renewably generate up to twice as much electricity annually by 2025 as we use today. By 2050, at the latest, we want to meet almost all of our local energy needs, whether for heat, electrical power or vehicle transport, by low carbon electricity production.	The SEA should include consideration and assessment of the additional energy demands and consumption associated with the WRMP during both construction, from vehicle movements and equipment, and operation, from potential increased pumping.
Welsh Assembly Government Planning Policy Wales (2016) Edition 8	
National land use policies for local authorities to take into account when compiling their LDPs. Chapter 12 Infrastructure and Services addresses water supply. Objectives include:	The SEA should take into account the objectives relating to water supply.

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
To protect and improve water resources through increased efficiency and demand management of water, particularly in those areas where additional water resources may not be available.	
Local	
Public Rights of Way Improvement Plans (ROWIP)	
These plans are prepared by local authorities to describe how improvements to the public rights of way network will be undertaken to provide a better experience for a range of users. ROWIPs are reviewed every ten years.	The WRMP may affect public rights of way (PRoW) for example due to construction. The SEA should include an objective that protects PRoW.
Biodiversity Action Plans.	
Local Biodiversity Action Plans (LBAPs) identify priority habitats and species at a local level, setting targets for their conservation and outlining the mechanisms for achieving these targets. The following BAPs are relevant to the Severn Trent Water area: • Warwickshire, Coventry and Solihull LBAP • Gloucestershire BAP • Worcestershire BAP • Nottinghamshire LBAP • Staffordshire BAP • Shropshire BAP • Peak District LBAP • Lowland Derbyshire LBAP Wales BAP • The key principles that inform the approach to the management of the BAP are as follows; • Enhance and protect biodiversity by preventing habitat loss and degradation to secure healthy, functioning ecosystems. • Facilitate the adaptation of the natural environment so that it can be resilient to climate change. • To increase public awareness and involvement with biodiversity conservation.	The impact of WRMP options on biodiversity and climate change resilience should be considered.
Environment Agency (2004) River Trent Salmon Action Plan (SAP)	
The Plan details the threats facing the salmon population of the River Trent and aims and objectives for improving the situation. Key objectives are as follows; • Restore a self-sustaining run of salmon to the River Trent by 2028. • Monitoring populations in headwaters to capture increase in smolt production. Habitat improvements along the river corridors.	The WRMP may have the potential to impact on fish migration. The SEA will cover fish passage as an element of at least one sustainability objective.
Birmingham City Council (2010) Core Strategy 2026 Consultation Draft	
The purpose of the Core Strategy is to set out a clear spatial framework for the growth of Birmingham up to 2026. The Strategy includes the following objectives:	The WRMP should ensure the sustainable management of water resources. SEA objectives should reflect and consider

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
• To promote Birmingham's national and international role as a global city • To create a more sustainable city that minimises its carbon footprint and waste while allowing the city to grow • To develop Birmingham as a city of vibrant urban villages, that is safe, diverse and inclusive with a locally distinctive character • To secure a significant increase in the city's population, towards 1.1 million • To create a prosperous, successful economy, with benefits felt by all • To provide high quality transportation links throughout the city and with other places and encourage the increased use of public transport • To make Birmingham a learning city with quality institutions • To encourage better health and wellbeing through the provision of new and existing sports and leisure assets linked to good quality public open space throughout the city To protect and enhance the city's heritage and historic environments allowing biodiversity and wildlife to flourish	relevant objectives from the Core Strategy.
Harborough District (2011) Core Strategy Adopted	
The Core Strategy is the key plan within the Local Development Framework for Harborough District. It sets the context for all future local planning documents. The Strategy includes the following objectives: • To meet strategic housing requirements, the accommodation needs of the District's population and the need for affordable housing • To locate new development in sustainable locations that respect environmental capacity and which have appropriate infrastructure, services and facilities in place or where these can realistically be provided; and to encourage the appropriate re-use of brownfield sites in sustainable locations. • To protect, enhance and, where appropriate, secure the provision of additional accessible community services, facilities, open spaces and infrastructure throughout the District. • To protect and enhance the District's distinctive rural landscape, settlement pattern, historic assets, natural environment and biodiversity. • To safeguard and enhance the character and built heritage of the District's settlements and ensure that residential amenity is protected. • To protect and promote the economic viability and vitality of the District's towns and rural centres. • To reduce the environmental impacts of road traffic, both private and commercial, and lessen the need for car use by encouraging alternative modes of transport including cycling and walking. • To minimise waste production and maximise re-use and recycling of waste. • To minimise energy demand and maximise the use of renewable energy resources. • To promote sustainable growth of tourism and access to the countryside within the district. To locate new development in areas which will not put life or property at risk of flooding	The WRMP should ensure the sustainable management of water resources. SEA objectives should reflect and consider relevant objectives from the Core Strategy.

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
Chesterfield Borough (2012) Draft Core Strategy February 2012	
The Chesterfield Borough Core Strategy sets out our proposals for the development and use of land in Chesterfield over the next 20 years. The Strategy outlines the vision of what the Borough will look like in the future. The Strategy includes the following objectives: • Minimise greenhouse gas emissions in line with Government targets, increase the use of renewable energy and help the borough adapt to the effects of climate change. • Provide sites for 7,600 homes to be built between 2011 and 2031 to meet the housing requirement for Chesterfield borough • Adopt the approach to flood risk set out by the Government in allocating land for development, so that risk of flooding at existing and new properties is reduced. • Provide 79 ha of new employment land between 2011 and 2031 • Prevent any net loss of biodiversity and protect and improve the borough's key green infrastructure assets (such as Borough & Community Parks, Wildlife Sites, River/Canal Corridors and Greenways). Ensure that new development is designed to a high standard, promotes architectural quality and reflects local distinctiveness.	The WRMP should ensure the sustainable management of water resources. SEA objectives should reflect and consider relevant objectives from the Core Strategy.
Black Country (2012) Core Strategy Adopted February 2011	
The four Black Country Local Authorities (Dudley, Sandwell, Walsall and Wolverhampton) agreed to work together to produce a Black Country Core Strategy in partnership with the community and other key organisations such as voluntary and private sector bodies and businesses. The Vision of the strategy consists of three major directions of change and underpins the approach to the whole strategy; 1. Sustainable Communities 2; Environmental Transformation and 3. Economic Prosperity. Relevant Objectives of the Strategy are as follows: • Focussed investment and development in comparison shopping, office employment, leisure, tourism and culture within the four Strategic Centres: Brierley Hill, Walsall, West Bromwich and Wolverhampton, to retain and increase their share of economic activity and meet the increasing aspirations of their catchment areas. • Model sustainable communities on redundant employment land in the Regeneration Corridors, that make the most of opportunities such as public transport and canal networks, are well served by residential services and green infrastructure, have good walking, cycling and public transport links to retained employment areas and centres, are set in a high quality natural and built environment and are well integrated with surrounding areas. • Enhancements to the character of the Black Country's existing housing areas by protecting and improving high quality residential areas and pursuing a sustained and focussed programme of housing renewal in low quality residential areas requiring intervention. • A network of vibrant and attractive town, district and local centres across the Black Country, each offering an appropriate choice of facilities. The historic character of these centres will be protected and enhanced through sensitive development of local facilities, housing led development and environmental improvements to create safe, attractive streets and spaces. • A high quality environment fit for the future, and a strong Urban Park focussed on beacons, corridors and communities; respecting,	The WRMP should ensure the sustainable management of water resources. SEA objectives should reflect and consider relevant objectives from the Core Strategy.

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
protecting and enhancing the unique biodiversity and geodiversity of the Black Country and making the most of its assets whilst valuing its local character and industrial legacy. • A first-class transport network providing rapid, convenient and sustainable links between the Strategic Centres, existing and new communities, and employment sites. • A sustainable network of community services, particularly high quality lifelong learning, health care and sport and recreation facilities, which are easily accessible to all residents at a neighbourhood level, resulting in an increase in levels of qualifications, skills, health and well-being, a decrease in deprivation indicators and improved perception of residential neighbourhoods across the Black Country. • Sufficient waste recycling and waste management facilities in locations that are the most accessible and have the least environmental impact. Safeguard and make the most sustainable use of the Black Country's mineral resources including primary, secondary and recycled materials, without compromising environmental quality.	
Leicester City Council (2010) Leicester City Local Development Framework - Core Strategy, adopted November 2010	
The Core Strategy sets out the vision, objectives and spatial strategy for the City. The Core Strategy also addresses the spatial aspects of the Community Strategy, as well as other strategies and programmes of key stakeholders in the City. Objectives of the Core Strategy include: • To reduce inequalities of health between city Communities • To reduce the impact of development on climate Change • A high standard of design for new development. • To enable people to move in and around the City. • To develop a strong and vibrant City Centre. • To preserve and enhance Leicester's heritage. • To conserve, protect and enhance the City's natural environment. • To ensure access to high quality outdoor sports children's play provision and active recreation facilities for all residents.	The WRMP should ensure the sustainable management of water resources. SEA objectives should reflect and consider relevant objectives from the Core Strategy.
Borough of Redditch (2011) Revised Preferred Draft Core Strategy – Development Plan Document – for the Borough of Redditch Jan – March 2011 (DRAFT)	
To deliver the Vision a set of 12 non-prioritised Objectives have been developed that reflect the aspirations of the vision and provide direction for the Core Strategy policies. These include: • To maintain and provide a high quality natural, rural and historic environment with a Green Infrastructure network which maximises opportunities for biodiversity value, wildlife and ecological connectivity • To ensure that all new development in Redditch Borough will work towards the achievement of being carbon neutral in line with the National Standards • To reduce the causes of, minimise the impacts of and adapt to climate change	The WRMP should ensure the sustainable management of water resources. SEA objectives should reflect and consider relevant objectives from the Core Strategy.

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
• To protect, promote and where possible enhance the quality of the Boroughs landscape and Redditch Borough's other distinctive features • To encourage safer, sustainable travel patterns, improve accessibility and maintain a balanced road hierarchy and reduce the need to travel • To enhance the visitor economy and Redditch's cultural and leisure opportunities including Abbey Stadium • Reduce crime and anti-social behaviour and the fear of crime through high quality design, with regeneration achieved at the former New Town District Centres • To protect and enhance water, air and soil and minimise flood risk • Ensuring there is a range of health facilities that support existing and new communities and to promote the role of healthy living through good planning.	
Bromsgrove District Council (2011) Draft Core Strategy 2 – January 2011 (DRAFT)	
A set of spatial objectives have been defined that aim to deliver the spatial vision, for Bromsgrove by 2026. The objectives provide the basis for the preferred spatial strategy for the District, including the core policies that are necessary to secure the delivery of the vision. The proposed strategic objectives include: • Encourage more sustainable and healthy modes of travel and a modal shift in transport, for example encouraging walking and cycling and promoting a more integrated, sustainable and reliable public transport network across the District • Improve quality of life, sense of wellbeing and reduce fear of crime by promoting active, healthy lifestyles for example by providing safe and accessible health, education, cultural and leisure facilities to meet the needs of Bromsgrove's residents • Protect and enhance the unique character, quality and appearance of the historic and natural environment, throughout the District • Safeguard and enhance the District's natural resources such as soil, water and air quality; minimise waste and increase recycling including re-use of land, buildings and building materials • Ensure the District is equipped to adapt to and mitigate against the impacts of climate change, for example, by managing and reducing flood risk by ensuring water and energy efficiency and by encouraging new developments to be low or zero carbon • Promote high quality design of new developments and use of sustainable building materials and techniques • Foster local community pride, cohesion and involvement in the plan making process	The WRMP should ensure the sustainable management of water resources. SEA objectives should reflect and consider relevant objectives from the Core Strategy.
Local Planning Authorities (various) Water Cycle Studies that have been undertaken for housing growth points	
A water cycle study identifies tensions between growth proposals and environmental requirements on a local scale, and identifies potential solutions to addressing them. The water cycle studies within Severn Trent Water area: • bring together all partners and stakeholders existing knowledge, understanding and skills	The WRMP has the potential to impact on water resources, water supply and wastewater treatment, so should take account of development proposed within the area.

Objectives identified in the Policy, Plan or Programme	Influences on the WRMP and implications for the SEA objectives
• bring together all water and planning evidence under a single framework • understand the environmental and physical constraints to development • work alongside green infrastructure planning to identify opportunities for more sustainable planning • identifying water cycle planning policies and a water cycle strategy to help all partners plan for a sustainable future water environment.	

Appendix B – Quality Assurance Checklist

The Practical Guide suggests a Quality Assurance checklist to help ensure that the requirements of the SEA Directive are met. The checklist is reproduced in **Table B1**, indicating where this Scoping Report meets the requirements, and which requirements will be addressed in the Environmental Report.

Table B1. Quality Assurance Checklist

Checklist item	Comments
Objectives and context	
The plan's or programme's purpose and objectives are made clear.	The purpose of the dWRMP is set out in Section 2 of this Scoping Report.
Environmental issues, constraints - including international and EC environmental protection objectives - are considered in developing objectives and targets.	Objectives of other relevant plans and programmes are set out in Section 3 and Appendix A.
SEA objectives, where used, are clearly set out and linked to indicators and targets where appropriate.	Draft objectives are set out in Section 5 of this Scoping Report.
Links with other related plans, programmes and policies are identified and explained.	Links are identified in Section 3 and Appendix A of this Scoping Report.
Conflicts that exist between SEA objectives, between SEA and plan objectives and between SEA objectives and other plan objectives are identified and described	Interactions between objectives are presented in Section 5.3.
Scoping	
Consultation Bodies are consulted in appropriate ways and at appropriate times on the content and scope of the Environmental Report.	This Scoping Report is a part of the consultation process required to meet the requirements of the SEA Directive and will be circulated to consultees. Further consultation will be undertaken on the Environmental Report and dWRMP. The consultation process is described in Section 1.6.
The assessment focuses on significant issues.	The proposed scope of the assessment reflects the geographic extent of Severn Trent Water's Water resource zones, and provides a comprehensive approach to assessment (reflecting the large number of interactions dependent on the continued supply of water) which will enable the subsequent assessment to determine which impacts will be considered significant.
Technical, procedural and other difficulties encountered are discussed; assumptions and uncertainties are made explicit.	Difficulties and assumptions with respect to establishing the baseline are set out in Section 4.4.1 of this Scoping Report.
Reasons are given for eliminating issues from further consideration.	The proposed objectives provide a comprehensive basis for assessment and at this stage, no issues have been eliminated.
Alternatives	
Realistic alternatives are considered for key issues, and the reasons for choosing them are documented.	The dWRMP considers a range of options/alternatives (described further in Section 6 of this report). SEA plays an important role in options appraisal process; options which are found by the SEA to have unacceptable potential impacts will be rejected from the options pool and will not reach the constrained list, from which the initial Least Cost programme is selected. This will be documented in the Environmental Report.

Checklist item	Comments
Alternatives include 'do minimum' and/or 'business as usual' scenarios wherever relevant.	Assessment of alternatives will be presented in the Environmental Report. However, a 'do minimum' and/or 'business as usual' scenario is not considered appropriate with respect to the WRMP SEA.
The environmental effects (both adverse and beneficial) of each alternative are identified and compared.	Assessment of environmental effects (both adverse and beneficial) of each alternative will be undertaken and presented in the Environmental Report.
Inconsistencies between the alternatives and other relevant plans, programmes or policies are identified and explained.	Inconsistencies between the alternatives and other relevant plans, programmes or policies will be identified and explained in the Environmental Report.
Reasons are given for selection or elimination of alternatives.	The WRMP and Environmental Report will document the reasons for selection or elimination of alternatives.
Baseline information	
Relevant aspects of the current state of the environment and their likely evolution without the plan or programme are described.	The current state of the environment and predicted future baseline is set out in Section 4 of this Scoping Report for each SEA topic.
Environmental characteristics of areas likely to be significantly affected are described, including areas wider than the physical boundary of the plan area where it is likely to be affected by the plan.	The environmental characteristics of the Severn Trent Water's water supply area, and bordering regions where appropriate, are described in Section 4.
Difficulties such as deficiencies in information or methods are explained.	Difficulties and limitations are set out in Section 4.4.1.
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.	Potential effects will be set out in the Environmental Report.
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 will be set out in the Environmental Report, using an appraisal framework based on the one included in Section 5 of this Scoping Report.
Likely secondary, cumulative and synergistic effects are identified where practicable.	These effects will be identified in the Environmental Report, as described in Section 5.5.
Inter-relationships between effects are considered where practicable.	These will be considered in the Environmental Report. Alongside cumulative effects.
The prediction and evaluation of effects makes use of relevant accepted standards, regulations, and thresholds.	Relevant standards will be used where appropriate in undertaking the assessment.
Methods used to evaluate the effects are described.	Methods used to evaluate the effects will be described in the Environmental Report. These will be based on the methods outlined in Section 5 of this Scoping Report.
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 will be incorporated into the assessment undertaken in preparing the Environmental Report.
Issues to be taken into account in project consents are identified.	Effects, mitigation and monitoring identified through the SEA will inform further more detailed scheme level assessments such as EIA.
The Environmental Report	

Checklist item	Comments
Is clear and concise in its layout and presentation.	The Environmental Report will be clear and concise.
Uses simple, clear language and avoids or explains technical terms.	The Environmental Report will use simple, clear language, and explain technical terms, as appropriate.
Uses maps and other illustrations where appropriate.	The Environmental Report will use maps and illustrations where appropriate.
Explains the methodology used.	SEA methodology will be described in the Environmental Report.
Explains who was consulted and what methods of consultation were used.	The consultation strategy, including organisations and dates of consultation will be included in the Environmental Report.
Identifies sources of information, including expert judgement and matters of opinion.	Sources of information will be detailed in the Environmental Report.
Contains a non-technical summary covering the overall approach to the SEA, the objectives of the plan, the main options considered, and any changes to the plan resulting from the SEA.	The Environmental Report will include a Non-Technical Summary.
Consultation	
The SEA is consulted on as an integral part of the plan-making process.	This Scoping Report is a part of the consultation process required to meet the requirements of the SEA Directive and will be circulated to consultees. Further consultation will be undertaken on the Environmental Report and dWRMP. The consultation process is described in Section 1.6.
Consultation Bodies and the public likely to be affected by, or having an interest in, the plan or programme are consulted in ways and at times which give them an early and effective opportunity within appropriate time frames to express their opinions on the draft plan and Environmental Report.	The statutory consultation bodies, as well as the public, will be invited to express their views on the Environmental Report and will have the opportunity to use it as a reference point in expressing their views on Severn Trent Water's dWRMP. The consultation process is described in Section 1.6.
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.	Representations made on the dWRMP will be addressed in preparing the final WRMP.
An explanation is given of how they have been taken into account.	A Statement of Response to the representations will be produced and made publically available.
Reasons are given for choosing the plan or programme as adopted, in the light of other reasonable alternatives considered.	On adoption of the final WRMP, after approval by the regulators, the company will prepare an SEA Statement setting out how the SEA and any views expressed by the consultation bodies or the public have influenced the WRMP.
Monitoring measures	
Measures proposed for monitoring are clear, practicable and linked to the indicators and objectives used in the SEA.	The Environmental Report will include a section addressing proposals for monitoring.
Monitoring is used, where appropriate, during implementation of the plan or programme to make good deficiencies in baseline information in the SEA.	The suggestions for monitoring will be made in the Environmental Report, with monitoring taking place following implementation of the final WRMP Plan, further to consultation with regulatory authorities including the Environment Agency, Natural England and Historical England.

Checklist item	Comments
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 will be made in the Environmental Report, with monitoring taking place following implementation of the final WRMP Plan, further to consultation with regulatory authorities including the Environment Agency, Natural England and Historical England.
Proposals are made for action in response to significant adverse effects.	Mitigation measures for adverse effects will be addressed in the Environmental Report.

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