Drought Plan 2022
Annex 9:
SEA Environmental Report Appendices

Appendices A to C

Publication date: August 2025

Appendix A
Consultee Responses to the Scoping Report and Amendments Made as a Consequence

Southern Water issued updated SEA scoping information to statutory bodies on 02 February 2021.

Comments on the SEA scoping information were received from the following organisations:

- Natural England
- Environment Agency
- Historic England

These comments are set out in Table A1 together with Southern Water's response as to how it has taken them into account in developing the SEA of the Draft Drought Plan 2022.

Table A1 Draft Drought Plan: SEA scoping information - responses to comments received

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
1.1	Natural England	**General points** **Consultation format** The European Commission Directive 2001/42/EC "on the assessment of the effects of certain plans and programmes on the environment" is known as the 'SEA Directive'. It requires "an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment" (EC, 2001; Article 1). The provision is explicitly applied to plans made for "water management". The SEA scoping is a statutory part of the consultation process and consultation with Natural England is required under Regulation 12 (5). The SEA scoping report is not a full report but a series of short appendices and an overarching letter with reference back to other information based on the existing SEA scope of the plan published in 2018 and 2019. Though this approach in theory "avoids duplication" as set out in your consultation letter, in practice it makes commenting on the documents difficult and involves reference to documents and information that are provided by a single link in the footnote of the covering letter. This format significantly reduces both the clarity and transparency of the SEA scoping consultation. The unusual format combined with a minimal pre-consultation on the options likely to be in the plan and the absence of consultation questions has lead to a lack of clarity in the consultation.	Noted.

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
1.2		**Links to national and regional planning** Much of the information on how the SEA and Drought Plan will link to the National Framework for Water Resources and the Water Resources South East (WRSE) is contained only within the covering letter and is therefore limited. Natural England welcome the reference to WRSE and recognise the difficulty of the timing of the draft Drought Plan submissions in relation to the WRSE plan development. The SEA must be sufficiently flexible to take account of any changes necessitated by changes in the WRSE SEA approach and policies.	Comment noted. The links to the regional plan environmental assessment methodology are presented within the Environmental Report.
1.3		**Nomenclature and links to Habitats Regulations Assessment** Regulation 9 of the Conservation of Habitats and Species Regulations 2017 (S.I. 2017/1012) as amended requires every competent authority, in the exercise of any of its functions, to have regard to the requirements of the Habitats Directive. Regulation 10 places a duty on a competent authority, in exercising any function, to use all reasonable endeavours to avoid any pollution or deterioration of habitats of wild birds. In addition, regulation 63 places obligations on competent authorities in respect of plans or projects likely to have a significant effect on a protected site. Water Companies have a statutory duty to prepare draft Drought Plans and so they are the Competent Authority for Habitats Regulations Assessment (HRA) of the draft Drought Plan. In England, as a matter of policy, sites listed or proposed under the "Ramsar Convention on Wetlands of International Importance" receive the same level of protection as Habitats' sites. Sites covered by the Regulations are now referred to as Habitats' sites in the Government advice on assessment of plans and projects and in the National Planning Policy Framework. It is also	Comment noted. Scoping information updated to remove inappropriate and out-of-date terminology. The findings of the HRA process will inform the SEA, this is made clear within the Environmental Report. A separate HRA Report has been produced and is available for comment alongside the Draft Drought Plan and the SEA Environmental Report.

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
		acceptable to refer to them collectively as European sites. It is no longer appropriate to refer to them as Natura 2000 sites. Throughout the scoping document and other documents the reference for sites protected under the Habitats Regulations should be updated to remove inappropriate and out-of-date terminology. The Habitats Regulations assessment should be prepared alongside and to accompany the SEA. The proposed links between the two processes are unclear in the SEA scoping consultation documents. At the draft Drought Plan stage it should be made clear how the HRA has informed the SEA and how they have both influenced the development of the draft Drought Plan. Southern Water's existing 2019 Drought Plan options significantly effect a number of Habitats' sites and includes options that have required compensatory measures. The most stringent consideration should be given in the draft Drought Plan SEA and HRA if options with a likely significant effect still need to be included within the Drought Plan and if so, how can adverse effects be avoided where possible. The HRA should be a full and separate document to the SEA and the SEA must have full regards to the results of the HRA. The HRA must have reference to the conservation objectives for the relevant Habitats' sites but also to any supplementary advice to the conservation objectives.	
1.4		**SEA scoping comments** **List of plans or programmes** The baseline list of plans, policies and programmes from the 2021 is relatively comprehensive, and we welcome the inclusion of the Defra 25 Year Environment Plan, the draft environment bill and relevant protected landscape	Scoping information has been updated where necessary to reflect this comment. The draft drought plan and SEA will have regards to the updated UKWIR guidance when published. Other water company plans including Drought and Water Resources Management Plans have been considered as part of the cumulative

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
		management plans. Please update the baseline plans or policies listed to include the following: • Amend reference to the Wildlife and Countryside Act 1981 to include (as amended) as significant amendments to the Wildlife and Countryside Act with regards to designated sites have been made since 1981. • Amend reference to Conservation of Habitats and Species Regulations to include the updated 2017 legislation which replaced the 2010 version of the legislation and has since been amended linked to adoption following EU exit. • Marine Strategy Framework Directive • Relevant Inshore Marine Plans • Other water company plans including Drought and Water Resources Management Plans • RAPID programme • Natural England's Conservation 21 strategy • Rights of Way Improvement Plans • Coastal access plans • Relevant River Restoration Plans • Conservation objectives of relevant Habitats' Sites and Marine Protected Areas • Supplementary advice to Conservation Objectives (SACOs) for relevant sites • Favourable Condition Tables for relevant Sites of Special Scientific Interest We note the scoping documents have been produced under the old UKWIR guidance for SEA and HRA assessment of drought plans . The new guidance is in draft and is expected in 2021. The draft drought plan and SEA should have regards to the updated guidance when published.	effects assessment in the Environmental Report. Furthermore, the SEA process for the emerging regional plan is currently assessing the potential cumulative effects of all the feasible drought and water resource options. Conservation objectives of European sites are presented within the HRA Report.

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
1.5		**Existing baseline data - flora and fauna** Designated sites list: Generally much of the baseline appears to be from the south east region rather than southern waters supply area exclusively. The baseline table of SPAs is missing the following designated site: • Solent and Dorset Coast SPA Some of the designated sites are not correct – where this is a simple spelling or word missing the correct name is given below: • The SAC is called Dungeness only the SPA and Ramsar have the full title Dungeness Romney Marsh and Rye Bay The SSSI is called Thursley, Hankley and Frensham the SPA is usually referred to as Wealden Heaths Phase I though the SSSI name is acceptable with the SPA in brackets. • Ebernoe Common SAC • East Hampshire Hangers SAC • Kennet Valley Alderwoods SAC • Folkestone to Etchinghill Escarpment SAC The condition of designated sites in Southern Waters supply area should be included in the drought plan baseline as it is material to the options potential impacts. Many designated sites in Southern Water's supply area are not in favourable condition or not meeting their conservation objectives. Impacts of water quality, geomorphology, development and abstraction lower designated sites resilience to drought. Drought options can exacerbate this already lowered resilience resulting in permanent impacts. The SEA must take account of this lowered resilience from other, often multiple, anthropogenic stressors when assessing the impacts of the draft Drought Plan on flora and fauna.	As explained in the scoping letter, the area under consideration for the SEA of the Drought Plan is wider than just Southern Water's operational area. The geographical area under consideration for the SEA covers all of Southern Water's Water Resource Zones (WRZs) as well as the river and/ or groundwater catchments of those water sources and sources of bulk water supply imports that serve these WRZs but which lie outside their boundaries Baseline table of SPAs updated to include the Solent and Dorset Coast SPA and spelling errors addressed. Where necessary, the condition status of SSSIs will be taken into account if there is a pathway for impacts to occur. There are currently over 500 SSSIs within the geographical area under consideration through the SEA, as a result the condition status of all these sites have not been set out in the baseline information.

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
1.6		**Achieving nutrient and water neutrality** Much of the information on condition assessment in the nutrient neutrality is out-of-date. The condition of Chichester Harbour and associated Solent Maritime SAC, Chichester and Langstone Harbour SPAs have been condition assessed the report can be found online and is summarised in a recently published report Chi Review NERR090. In addition to the Solent, nutrient neutrality advice has been published and applies to wastewater within the Stour Catchment that effect Stodmarsh designated sites. In addition Natural England is working with Southern Water via their Drainage and Wastewater Management Plan (DWMP) to assess the likelihood of sites failing their conservation objectives on water quality, have a hydrological link to wastewater discharges and where there is significant growth. These are areas where the need for a nutrient neutral methodology cannot be ruled out. The SEA of draft Drought Plan should have regards to the interaction of proposed draft Drought Plan options with wastewater treatment works identified in this DWMP assessment. The SEA needs to reflect the wider implications of, not only nutrient neutrality, but also the underpinning caselaw. Due to recent findings there is a requirement for development in Sussex North supply area to be water supply neutral i.e. to have no net increase in the abstraction from recent actual at Pulborough groundwater abstraction currently. Any operation or management or change in the management of the groundwater abstraction in Sussex North during drought that could add to the existing adverse effect risk would not be acceptable unless the proposals could meet the later stages of the HRA (no alternatives etc.). The SEA (via the	Comment noted. Baseline data to be updated to reflect up to date evidence regarding nutrient neutrality and highlight that NE is working with SW via their Drainage and Wastewater Management Plan (DWMP) to assess the likelihood of sites failing their conservation objectives on water quality. The HRA process has informed the SEA.

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
		HRA) of the draft Drought Plan 2022 must take account of this and any other relevant existing adverse effects.	
1.7		**Biodiversity existing baseline** The list of water dependant biodiversity is extremely limited and does not include any of the key estuarine or coastal species for which freshwater flows can be critical. Key missing water habitats include (but are not limited to) • Lowland raised bog – e.g. Arun Valley relict lowland raised bog • Coastal and floodplain grazing marsh • Saltmarsh – freshwater flows are essential to keeping creeks open and Southern saltmarshes stop growing in drought • Estuary features - are defined as the transition from freshwater to saline and freshwater flows are needed for their integrity. • Mudflats – some shore birds feed disproportionately on freshwater flows on mudflats as this impacts prey availability. • Coastal Lagoons Southern Waters supply area is particularly important for wintering and nesting wetland birds and for aquatic plants such as Potamogeton actuifolius, Leersia oryzoides and a range of rare and threatened species. The current baseline list does not include any plant species and only two bird species. This list should be improved in particular in relation to impacts of drought options which should have accompanying Environmental Assessment Reports that include all the rare protected and priority habitats and species that could be impacted by them.	Comment noted, with thanks. Baseline to be updated to include key missing water habitats, plant species and bird species. However, it is noted that the list of important water-related NERC species within the baseline is not exhaustive, providing a high-level overview with few examples. Furthermore, the EARS have informed the SEA.

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
1.8		**Cumulative and in combination assessments** There are several catchments in Southern Water's supply area that are impacted by more than one companies draft Drought Plan options. Though individually options may not have significant negative impacts, combined effects of other Southern Water options and those in other companies plans and other sectors (such as farming sector) need to be assessed in light of the current condition of designated sites and resilience of catchments. Natural England recommend that companies work together to undertake catchment or river restoration, water quality improvements to remove other (none flow related) impacts on rivers estuaries or wetlands with multiple drought plan options to help habitats and associated biodiversity become more resilient to the impacts of drought and prolonged dry weather. This will in turn make companies assets more resilient. The SEA should take account of other companies and sectors plans and cumulative impacts of multiple environment stressors and climate change on the baseline level of resilience.	Noted, with thanks. Combined effects of other Southern Water options and those in other companies plans and other sectors considered in the Environmental Report and findings set out alongside the Draft Drought plan. .

1.9	**Future baseline - flora and fauna** The Future Baseline should have regards not only the Draft Environment Bill but also to the legislation and policies for restoration and achievement of biodiversity and landscape targets in the 25 Year Environment Plan. Some examples are set out below: Sites of Special Scientific Interest (SSSIs) Section 28G of the Wildlife and Countryside Act 1981, as inserted by section 75 of and Schedule 9 to the Countryside and Rights of Way Act 2000, places a duty on public authorities, including water companies, to take reasonable steps consistent with the proper exercise of their functions to further the conservation and enhancement of SSSIs. These duties are mirrored in the general recreational and environmental duties placed on relevant undertakers in the Water Industry Act (1991) as amended. The Water Industry Strategic Environmental Requirements (WISER, page 29) sets out the expectations for delivery of these obligations. Companies are expected "to contribute to maintaining or achieving SSSI favourable condition both on [companies'] own land and in the catchments [companies] manage or impact on". The rate of improvement going forwards is set out in the Defra 25 Year Environment Plan which aims to restore "75% of our one million hectares of terrestrial and freshwater protected sites to favourable condition, securing their wildlife value for the long term". Natural England previously advised that we expect to the SEA of company draft Drought Plans to undertake SSSI assessment having regards to their existing condition in terms of resilience but also in terms of the drought options impact on ability to restore sites to favourable condition taking account of the need to adapt some sites to climate change. The assessment of options on SSSIs should be at least a distinct section if not a full distinct appendix of the	Comment noted. Policy context includes reference to legislation and policies for restoration and achievement of biodiversity and landscape targets in the 25 Year Environment Plan. Key legislation and policies in this respect will be included in the assessment carried out throughout the Environmental Report, and findings published alongside the Draft Drought plan.

draft Drought Plan SEA. This section should have regards to the favourable condition tables for the relevant designated sites.

Marine Conservation Zones

Section 125 of the Marine and Coastal Access Act (MCAA) (2009) applies a general duty to public authorities to exercise their functions in a way that best furthers the conservation objectives of a Marine Conservation Zone (MCZ) or, where that is not possible, least hinders them. There is also an obligation to notify Natural England where a public authority's function might significantly hinder the MCZ's conservation objectives or significantly affect an MCZ. The relevant public authorities must take account of this duty in the assessment of the water company statutory plans including the draft Drought Plan.

The Defra 25 Year Environment Plan states "We will achieve a growing and resilient network of land, water and sea that is richer in plants and wildlife this includes […]
• Reversing the loss of marine biodiversity and, where practicable, restoring it, [….]
• Increasing the proportion of protected and well-managed seas, and better managing existing protected sites."

The marine and coastal environment is disproportionately impacted by the options in Southern Water's 2019 Drought Plan not only proposed orders and permits but also proposed temporary desalination plants. There are also proposals for desalination options for long term water resources in Sothern Water's supply area which could act cumulatively or in combination to impact designated sites. In addition to desalination there is potential for draft Drought Plan options to reduce freshwater flows to estuaries, saltmarshes and mudflats. These features are often marine protected areas both inside Habitats' sites and outside.

Natural England previously advised water companies with significant options on the coast, including desalination options, that we expect to see a separate assessment of impacts on Marine Conservation Zones as well as an HRA of impacts on marine Habitats' sites. We also expect to see at least a separate section for marine monitoring for options on the coast. This advice remains for the draft Drought Plan 2022 SEA.

Biodiversity Net Gain and Natural Capital
Net gain in Biodiversity:
Under Section 40 of the Natural Environment and Rural Communities Act 2006 every public authority, including water companies, must in the exercise of its functions have regard so far as is consistent with the proper exercise of those functions to the purpose of conserving biodiversity. Conserving biodiversity in this context includes restoring or enhancing a population or habitat.

WISER (page 30) states water companies are expected "to develop measures during the price review to contribute to biodiversity priorities and obligations on [companies'] own land or in the catchments [companies] influence and operate in".

The Defra 25 Year Environment Plan states "We will achieve a growing and resilient network of
land, water and sea that is richer in plants and wildlife this includes:
• […] Creating or restoring 500,000 hectares of wildlife-rich habitat outside the protected site network, focusing on priority habitats as part of a wider set of land management changes providing extensive benefits and
• […] Taking action to recover threatened, iconic or economically important species of animals, plants and fungi, and where possible to prevent human-induced extinction or

loss of known threatened species in England and the Overseas Territories.

Securing a net gain in the draft Drought Plan will be very challenging. The 2019 Drought Plan was likely to contribute a net loss of biodiversity and options are likely to remain in the draft Drought Plan 2022 with the most serious impacts on the environment. Natural England expects to see a clear and numerical calculation of the net gain from the draft Drought Plan as a whole in the SEA.
This should be in a clear and distinct section and not relegated to a simple mitigation matrix where impacts and mitigation proposals are amalgamated.

Net gain in Natural Capital “environmental net gain”
Conservation 21: Natural England’s conservation strategy for the 21st century and Defra’s 25 Year Environment Plan encourage growth in natural capital and measurement of ecosystem services. WISER recommends that companies consider how natural capital accounting can inform water industry planning. WISER recommends that companies trial natural capital asset accounts (including quantity and condition) and ecosystem service assessments (including qualitative and quantitative assessments) to help companies better understand the flow of benefits. The Government’s stated ambition in the 25 Year Environment Plan is to ‘deliver an environmental net gain through the development of infrastructure’. “We will seek to embed a ‘net environmental gain’ principle for development to deliver environmental improvements locally and nationally.”

The SEA objectives and questions imply there will be a natural capital assessment as part of the SEA but no further information is provided on the approach proposed or the metrics planned in the limited consultation so Natural England cannot comment further at this stage. It is

important that this calculation takes account of more than river flows and that impacts on internationally and nationally important wildlife are weighted accordingly.

Climate Change
The Climate Change Act 2008 sets the legal framework for adaptation policy in the UK, preparing for the likely impacts of climate change. The 2nd Climate Change Risk Assessment (2017), identifies risks to water supply, and natural capital, including coastal communities, marine and freshwater ecosystems and biodiversity, as among the highest future risks for the UK relevant to the water industry. In addition to improving the natural capital including enhancing biodiversity (covered in the SEA and HRA above) the Defra 25 Year Environment Plan aspires to "take all possible action to mitigate climate change, while adapting to reduce its impact". WISER (page 54) states "a priority for all should be to work together to build an evidence-based understanding of the likely effects of climate change and identifying and implementing low carbon solutions that address any negative environmental impacts that may arise".

Though the risks to natural capital, including terrestrial, coastal, marine and freshwater ecosystems, soils and biodiversity is highlighted as a future issue it is not discussed and no relation to the draft Drought Plan is provided. The Coastal and freshwater biodiversity in Southern Water's supply area is particularly vulnerable to climate change. This, in part, is due to the lack of resilience resultant from multiple existing anthropogenic pressure, but is also due to the changes in our coastline and impacts of climate change on the South East's wildlife. The Drought Plan SEA must take account of the need for the South East's freshwater habitats to have more water in Drought

due to the increased temperatures and evaporative transpiration losses. In addition there is a need to leave more water in the environment upstream to facilitate the adaptation of species where resilience measures will not ensure their future survival. The SEA must assess the impacts of Drought Plan options on wildlife's need to adapt to climate change.

Water Framework Directive

The Water Framework Directive sets specific objectives for the protection of the water environment which include for surface water bodies the prevention of deterioration and achievement of good ecological status/potential. For groundwater bodies the objectives are to prevent deterioration and achieve good chemical and quantitative status.

The Defra 25 Year Environment Plan has ambitions to achieve a clean and plentiful water supply including "improving at least three quarters of our waters to be close to their natural state as soon
as is practicable by:
• Reducing the damaging abstraction of water from rivers and groundwater, ensuring that by 2021 the proportion of water bodies with enough water to support environmental standards increases from 82% to 90% for surface water bodies and from 72% to 77% for groundwater bodies.
• Reaching or exceeding objectives for rivers, lakes, coastal and ground waters that are specially protected, whether for biodiversity or drinking water as per our River Basin Management Plans.

The futures section on flora and fauna and water does not have regards to these targets this should be rectified in the SEA and draft Drought Plan itself. Note also that the list of canals in the area is missing. There are a number of

ecological important canals or canal reaches such as the Royal Military Canal in Kent which forms part of the Dungeness Romney Marsh and Rye Bay SSSI.

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
1.10		**Key Issues** **Flora and Fauna** Natural England welcome the list of key issues related to flora and fauna. These largely reflect key policy and legislative requirements for wildlife. Particularly welcome are the recognition of: • The need to support the achievement of favourable condition for designated sites and wider biodiversity and the recognition of the enhance objectives in relevant legislation. • The need to support net gain in biodiversity • The importance of the need to enable biodiversity to adapt to climate change • The need to reduce fragmentation and control invasive non native invasive species. • The need to connect people with and improve the value of nature Natural England recommends that the wording of the first and penultimate bullet points on page 2 under the flora and fauna theme are slightly amended to read as follows with additions in parenthesis: • The need to protect or enhance and support the achievement of favourable condition (and conservation status) the region's biodiversity, particularly within designated sites, species and habitats of principal importance. • The need to recognise the importance of (building wildlife's resilience to, and) allowing wildlife to adapt to climate change. **Population and Human Health**	Amended key issues to reflect this comment.

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
		It might be worth explicitly referencing the 25 Year Environment Plan Objective of protecting people from environmental Hazards in particular Drought. Natural England welcomes the explicit reference to raising awareness of drought and reference to recreational and amenity requirements for water and the value of water in the natural environment to local economy and wellbeing. **Material Assets and Resource use** The recognition of the need to minimise the use of water and other demand manage measures are welcome. **Water** The issues highlighted are welcomed. The recognition of the relevance of issues around water quality of the regions estuarine and coastal waters as well as rivers is also welcome. Natural England recommends that the wording of the first bullet is amended to read as follows with our additions in parenthesis: • The need to further improve the quality of the regions river, estuarine (wetlands) and coastal waters taking into account WFD objectives. **Soil Geology and landscape** Natural England welcomes the recognition of geodiversity issues and recommends that the wording of the second bullet is amended to read as follows with our additions in parenthesis: • The need to manage the land (and soil) more holistically at the catchment level, benefitting landowners, other stakeholders, the environment and sustainability of natural	

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
		resources (including water resources and best and most versatile soils). Natural England note's that the landscape and visual amenity is a separate topic and welcome the reference to protected landscapes enhancement in that topic.	
1.12		**Objectives for Assessment** The SEA framework for assessment appears to have included most of Natural England's previous comments on the assessment questions made on the previous Drought Plan SEA scoping report. <u>Flora and Fauna</u> Natural England welcomes the SEA objective and key questions but recommends that the wording is amended as following with our additions in parenthesis: • To conserve and enhance biodiversity, including designated sites of nature conservation interest and protected habitats and species and to enhance natural capital) including net gain in biodiversity). • Will it have Likely Significant Effects on Natura 2000 (Habitats') sites (with reference to HRA undertaken in parallel)? Or will it cause significant harm to a SSSI, Ancient Woodland or priority habitat? Natural England particularly welcomes the inclusion of enhancement objectives from policy and legislation and inclusion of consideration of adaptation though we recommend that the wording is amended as following with our additions in parenthesis:	Comment noted. Wording of objectives amended as recommended. Additional questions added to objectives as recommended.

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
		• Will it promote wildlife's (resilience to and/or) ability to adapt to climate change? Water Natural England welcomes the questions linked to resource and demand management but recommends that wording of objective 4.1 and questions are amended as following with our additions in parenthesis: • To avoid adverse impact on surface and groundwater levels, flows (and wetland water supply) including when this impacts on habitats. • Will it alter the flow regime or residence time (or water level) of surface waters (including the water supply to wetlands)? Soil Geology and landscape Natural England welcomes the inclusion of geological designated sites and focus on soil health but recommend on additional question in this topic: • Will the option remove impacts or improve ecosystem functioning of peat based soils? Landscape and visual amenity Natural England welcomes the objective and questions for this topic but suggest one additional question in this topic: • Where relevant, is the option compatible with the protected landscapes management plan?	
1.13		Natural England have no additional comments on other section of the SEA Scoping consultation.	Noted.

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
2	**Emily Rowland** Senior Officer, Operations Catchment Services – South East **Environment Agency**	We've now been able to review the SEA appendices. Our review was to address whether the SEA and/or the Environmental Report are legally compliant. In summary, it covers all aspects of a scoping document. The only comment to make is that there isn't an objective on carbon and carbon targets. Carbon is implicitly covered in objectives 6.1-6.3, however there is no specific mention of carbon and carbon reduction targets. Our advice would be to consider amending the objectives or key questions to more explicitly include carbon reduction. If you've got any further questions around this please get in contact.	Comment noted. Amended the key questions to include a reference to carbon reduction.
3	**Alan Byrne,** Historic Environment Planning Advisor **Historic England**	Thank you for your email of 4 February 2021 inviting comments on the Southern Water Drought Plan Strategic Environmental Assessment Scoping Report. Historic England is a statutory consultation body in relation to the SEA Directive in regard to any matters affecting the historic environment. We are content that the scoping report for Southern Water Drought Plan adequately covers the issues that may arise in respect of the potential effects of drought measures on heritage assets. This opinion is based on the information provided by you and for the avoidance of doubt does not affect our obligation to advise you on, and potentially object to any specific development proposal which may subsequently arise from this or later versions of the plan which is the subject to consultation, and which may, despite the SEA, have adverse effects on the historic environment.	Comment noted.

Appendix B
Review of Plans and Programmes

The findings of the review of policy, plans and programmes are set out in Table B1. The purpose of the review and the key findings are set out in Section 2 of this Environmental Report. This table sets out the purpose and objectives of the policy, plans and programmes, their potential relationship with Southern Waters Drought Plan and the potential implications of the plan objectives for the objectives of the SEA.

Table B1 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 Drought Plan and the SEA objectives
International	
The Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979)	
International convention which 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 impacts of the Drought Plan options on internationally designated sites, species and important Bird habitats must be considered as part of the SEA.
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 Drought Plan options on important bird habitats (i.e. Ramsar sites and SPA designated sites) must be considered as part of the SEA.
The Cancun Agreement (2011) & Kyoto Agreement (1997)	
The agreement represents 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.
COP21 climate change summit, Paris, 2015	
Commitment to cut carbon emissions which came into force in November 2016.	The SEA should refer to the need to reduce carbon emissions.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
International	
The European Convention on the protection of archaeological heritage (Valletta Convention)	
The Valletta Convention is one of a series of Conventions for the protection of the cultural heritage produced by the Council of Europe over the last fifty years.	The SEA should take into account the need to conserve heritage.
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.
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; Increase the engagement in and enjoyment of landscapes by the public; and Collaborate with partners across the UK and Europe.	The implementation of the Drought Plan may influence landscape or the enjoyment of landscapes in the Southern Water area and as such the SEA should seek to maintain or enhance the quality of the regions landscapes and the potential enjoyment of these landscapes.
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 (2011) The EU Biodiversity Strategy to 2020	
The Directive seeks to: Halt the loss of biodiversity and ecosystem services in the EU; and Help stop global biodiversity loss by 2020.	The implementation of the Drought Plan may influence biodiversity in the Southern Water District and as such the SEA should seek to maintain or enhance the quality of habitats and biodiversity.
European Commission (2009) Promotion of the Use of Energy from Renewable Sources Directive (2009/28/EC)	
This promotes the use of energy from renewable sources.	The SEA should seek to promote the use of renewable energy.
European Commission (2009), Birds Directive (2009/147/EC)	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
International	
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 SEA should seek to protect and conserve important bird habitats.
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 the Drought Plan may have some influence on air quality, either directly or indirectly through construction or operation activities. The 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, 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 basin management plans being coordinated, and through coordination of the public participation procedures in the preparation of these plans.	The SEA should seek to ensure that flood risk in the region is not adversely affected by the implementation of the Drought Plan.
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; and Minimum measures to be taken in response to suspected or established cases of certain diseases in aquatic animals.	The implementation of the Drought Plan may influence biodiversity in the Southern Water District and as such the SEA should seek to maintain or enhance the quality of habitats and biodiversity.
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 SEA should seek to ensure that the Drought Plan avoids causing direct or indirect damage to the aquatic environment

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
International	
	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.	The SEA should seek to promote the protection and enhancement of all water resources.
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 Directive was implemented in relation to public water supplies by the Water Supply (Water Quality) Regulations 2000, as amended.	The SEA should seek to ensure that objectives address water quality in the region, particularly drinking water quality.
Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive)	
The Marine Strategy Framework Directive aims to achieve Good Environmental Status (GES) of the EU's marine waters by 2020 and to protect the resource base upon which marine-related economic and social activities depend. It is the first EU legislative instrument related to the protection of marine biodiversity, as it contains the explicit regulatory objective that "biodiversity is maintained by 2020", as the cornerstone for achieving GES.	The SEA should seek to maintain, protect and improve the marine environment across the region.
Directive 2006/118EC of the European Parliament and of the council of 12 December 2006 on the protection of groundwater against pollution and deterioration	
This Directive establishes specific measures as provided for in Article 17(1) and (2) of Directive 2000/60/EC (Water Framework Directive) in	The SEA should seek to maintain, protect and improve water quality across the region.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
International	
order to prevent and control groundwater pollution. This Directive is designed to prevent and combat groundwater pollution.	
European Commission Directive 2006/7/EC of the European Parliament and of the Council of 15 February 2006 concerning the management of bathing water quality and repealing Directive 76/160/EEC	
The revised Bathing Water Directive (BWD) of 2006 updated and simplified the rules of the previous BWD. States are required to monitor and assess the bathing water for at least two parameters of (faecal) bacteria. In addition, they must inform the public about bathing water quality and beach management, through the so-called bathing water profiles. These profiles contain for instance information on the kind of pollution and sources that affect the quality of the bathing water and are a risk to bathers' health (such as waste water discharges).	The SEA should seek to maintain, protect and improve water quality across the region.
European Commission, Urban Waste Water Treatment Directive (1991/271/EC)	
The Directive's objective is to protect the environment from the adverse effects of urban waste water discharges and discharges from certain industrial sectors and concerns the collection, treatment and discharge of domestic waste water, mixture of waste water and waste water from certain industrial sectors.	The SEA should seek to maintain, protect and improve water quality across the region.
European Commission Nitrates Directive (91/676/EEC)	
This directive aims to protect water quality across Europe by preventing nitrates from agricultural sources polluting ground and surface waters and by promoting the use of good farming practices.	The SEA should seek to maintain, protect and improve water quality across the region.
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.	The impacts of the Drought Plan options on internationally designated sites and species must be considered as part of the SEA.
European Commission (2013) The 7th Environmental Action Programme (EAP) to 2020 Living well, within the limits of our planet' (1386/2013/EU)	
The EAP aims to guide environment policy until 2020 with three key objectives:	The commitment to conserving biological diversity must be considered in any drought plan options and the SEA should seek to

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
International	
To protect, conserve and enhance the Union's natural capital; To turn the Union into a resource-efficient, green and competitive low-carbon economy; To safeguard The Union's citizens from environmental-related pressures and risks to health and wellbeing.	promote the protection and enhancement of biodiversity.
European Commission (2012) Blueprint to Safeguard Europe's Water Resources	
This strategy aims to ensure that enough good quality water is available to meet the needs of people, the economy and the environment. The strategy includes: Improving implementation of current EU water policy; Increasing the integration of water policy objectives into other relevant policy areas such as agriculture, fisheries, renewable energy, transport and the Cohesion and Structural Funds; and Filling the gaps of the current framework, particularly in relation to the tools needed to increase water efficiency.	The commitment to conserving biological diversity must be considered in any Drought Plan options and the SEA should seek to promote the protection and enhancement of biodiversity.
European Commission (2006) Thematic Strategy for Soil Protection	
The Thematic Strategy for Soil Protection consists of a Communication from the Commission to the other European Institutions, a proposal for a framework Directive (a European law), and an Impact Assessment.	The SEA assessment framework should include soils.
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.
EC Regulation 1100/2007 of 18 September 2007 establishing measures for the recovery of the stock of European eel	
EC Regulation 1100/2007 of 18 September 2007 establishing measures for the recovery of the stock of European eel. This regulation provides a framework for the protection and sustainable use of the stock of European eel in Community waters, coastal lagoons, estuaries, rivers and communicating inland waters of member States that flow into specific seas.	The SEA should take account of the need to protect European eel.
EU Regulation 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
International	
This regulation seeks to address the problem of invasive alien species in a comprehensive way to enable the protection of native biodiversity and ecosystem services whilst minimising and mitigating the impacts on human health and the economy that such species can have. There are three types of interventions – prevention, early detection and rapid eradication and management.	The SEA should include an objective relating to invasive alien species.
Ramsar Convention, The Convention on Wetlands of International Importance (1971)	
The Convention on Wetlands of International Importance (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 Drought Plan options on important wetland habitats must be considered as part of the SEA.
United Nations (1992), Convention on Biological Diversity (CBD)	
The main objectives are: Conservation of biological diversity; Sustainable use of its components; and Fair and equitable sharing of benefits arising from genetic resources.	The commitment to conserving biological diversity must be considered in any Drought Plan options and the SEA should seek to promote the protection and enhancement of biodiversity.
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 SEA should seek to provide easily understood information to the public on the environmental implications of the Drought Plan and its constituent options.
United Nations (2002), Commitments arising from the World Summit on Sustainable Development, Johannesburg	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
International	
The World Summit on Sustainable Development proposed broad-scale principles which 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; and 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 Drought Plan should be influenced strongly by all of these themes and should seek to take its aims into account. The SEA should seek to promote the achievement of the sustainable development objectives outlined in this plan.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
Ancient Monuments and Archaeological Areas Act 1979	
This act addresses the protection of scheduled monuments including the control of works affecting scheduled monuments. It also addresses archaeological areas.	The Drought Plan and SEA should take account of the need to protect scheduled monuments and archaeological areas.
Joint Nature Conservation Committee (JNCC) and Defra (2012) The UK post-2010 Biodiversity Framework	
The UK Biodiversity Action Plan (UK BAP) was published in 1994 and was the UK government's response to the Convention on Biological Diversity. The UK BAP described the biological resources of the UK and provided detailed plans for conservation of these resources. Action plans for the most threatened species and habitats were set out to aid recovery, and national reports, produced every three- to five-years, showed how the UK BAP was contributing to the UK's progress towards the significant reduction of biodiversity loss. The 'UK Post-2010 Biodiversity Framework', published in July 2012, succeeds the UK BAP and 'Conserving Biodiversity – the UK Approach', and is the result of a change in strategic thinking following the publication of the Convention on Biological Diversity's (CBD) 'Strategic Plan for Biodiversity 2011–2020.	The commitment to conserving biological diversity must be considered in any drought plan options and the SEA should seek to promote the protection and enhancement of biodiversity.
The Climate Change Act 2008	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
This act sets carbon targets for 2050. The net carbon account for 2050 at least 80% lower than 1990 baseline.	This target needs to be taken into account by the SEA.
Conservation of Habitats and Species Regulations 2017	
The Conservation of Habitats and Species Regulations 2017 are the principal means by which the Habitats Directive is transposed in England and Wales as such its main objective is to promote the maintenance of biodiversity.	The impacts of the Drought Plan on species diversity must be considered as part of the SEA.
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; and Strengthens wildlife enforcement legislation.	The Drought Plan 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.
Natural England (2016) Conservation 21: Natural England's Conservation Strategy for the 21st Century	
Conservation 21 sets out how Natural England will work to protect England's nature and landscapes for people to enjoy and for the services they provide, in support of Defra's ambitions for the environment.	The Drought Plan should take into account the contents of this strategy.
Defra (2012) National Policy Statement for Waste Water	
A framework document for planning decisions on nationally significant waste water infrastructure.	The Drought Plan should take into account the contents of this paper.
Defra and Welsh Government (2014) River Basin Planning Guidance	
Aims to give guidance on practical implementation of the Water Framework Directive (WFD). The river basin planning process involves setting environmental objectives for all groundwater and surface waters (including estuaries and coastal waters) within the river	The Drought Plan should take into account the contents of this statutory guidance.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
basin district, and devising programmes of measures to meet those objectives.	
Defra (2002) Directing the Flow – Priorities for Future Water Policy	
This report sought out strategies and priorities for government policy on water for a duration of 20 years.	The Drought Plan should take into account the contents of this report.
Defra (2016) Guiding principles for water resources planning for water companies operating wholly or mainly	
Report explains the key policy priorities the government expects water resources management plans (WRMP) to address.	The Drought Plan should take into account the contents of this report.
Water Use (Temporary Bans) Order 2010	
This is the legislation for water restrictions (hose pipe bans) which are incorporated into the drought plans of the water companies.	The Drought Plan should take into account the contents of this report.
The Marine and Coastal Access Act 2009	
This Act allows for the creation of Marine Conservation Zones (MCZs). MCZs protect a range of nationally important marine wildlife, habitats, geology and geomorphology, and can be designated anywhere in English and Welsh territorial and UK offshore waters.	The Drought Plan may have an effect on the marine environment. The SEA should assess the effects on designated features of relevant MCZs and Recommended MCZs.
DCLG (2019) National Planning Policy Framework	
Presumption in favour of sustainable development. Core planning principles include taking account of the development needs of an area; contribute to conserving and enhancing the environment; re-use of previously developed land; conserve heritage assets; deliver sufficient community facilities to meet local needs. Delivering sustainable development includes: Building a strong competitive economy; Supporting a prosperous rural economy; Promoting sustainable transport; Requiring good design; Promoting healthy communities; Protecting green belt land; Meeting the challenge of climate change, flooding and coastal change; Conserving and enhancing the natural environment; Conserving and enhancing the historic environment; and Facilitating the sustainable use of minerals.	The Drought Plan and SEA should take account of the key components of sustainable development and consider the three dimensions to sustainable development: economic, social and environmental.
Department for Energy and Climate Change (2007) Energy White Paper: Meeting the Energy Challenge	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
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; and Ensuring every home is heated adequately and affordably.	The implementation of the Drought Plan may have an influence upon Southern 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 of energy and climate change (2011) Planning our electric future: a White Paper for secure, affordable and low carbon electricity	
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 Drought Plan may have an influence upon Southern 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 and The Environment Agency (2018) Resources and waste strategy for England	
The strategy 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 strategy sets out how the UK's material resources will be preserved, by minimising waste, promoting resource efficiency and moving towards a circular economy in England.	The Drought Plan 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.
HM Government (2019) A Green Future: Our 25 Year Plan to Improve the Environment	
The 25 Year Environment Plan sets out the Government's environmental plan of action over the next quarter century, in the context of Brexit. The Plan aims to tackle the growing problems of waste and soil degradation, improving social justice through tackling pollution and promoting the mental and physical health benefits of the natural world. It also sets out how the Government will address the effects of climate change. These aims are supported by a range of policies which are focused on the following six key areas: Using and managing land sustainably; Recovering nature and enhancing the beauty of landscapes; Connecting people with the environment to improve health and wellbeing;	The SEA should seek to promote the achievement of the environmental objectives outlined in this plan.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
Increasing resource efficiency, and reducing pollution and waste; Securing clean, productive and biologically diverse seas and oceans; and Protecting and improving the global environment.	
Defra (2020) The Draft Environment Bill	
The Environment Bill sets out how the UK will maintain environmental standards and build on the 25 Year Environment Plan.	The Drought Plan should seek to protect and enhance the natural environment, taking into consideration he principals and guidance set out through the Environment Bill.
Defra (2011) Water for Life - Water White Paper	
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. 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 (WRPG) from Government and the regulators. The catchment-based approach has now been implemented across England, with catchment partnerships now in place across the river basin to take forward the approach over the coming years	The Drought Plan should take into account the contents of this paper.
Defra and Environment Agency (2015) How to Write and Publish a Drought Plan	
This sets out how to assess the environmental effects of actions to maintain supply and how to mitigate. An environmental assessment must include details of changes as a result of actions to: Water flow or level regimes; Water quality; Ecology (sensitive features, habitats and species); Designated sites (habitats and species); and Fish populations (in particular migratory fish). Additionally, an assessment must include effects on WFD status and consider effects on river basin management plans.	The SEA must take into account the approach to environmental assessment and what needs to be done to mitigate or reduce adverse effects and provide compensation for effects that remain following mitigation.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
Assessments should also take into account the Handbook for Scoping Projects: Environmental Assessment and the EcIA Guidelines. For SEAs of a Drought Plan, guidance should be followed in the DCLG (2005) Practical Guide to the Strategic Environmental Assessment Directive and UKWIR (2012) Strategic Environmental Assessment and Habitats Regulations Assessment: Water Resources Management Plans and Drought Plans. There is a need to identify what needs to be done to mitigate or reduce adverse effects and provide compensation for effects that remain following mitigation. This includes the identification of pre-drought, in-drought and post drought mitigation actions.	
Environment Agency (2020) Meeting our Future Water Needs: a National Framework for Water Resources	
The National Framework explores the long-term needs of all sectors that depend on a secure supply of water. This includes public water supplies provided by water companies to customers' homes and businesses; direct abstraction for agriculture, electricity generation and industry; and the water needs of the environment.	An SEA is being undertaken for the Drought Plan.
Environment Agency (2016) Drought plan guideline extra information, Environmental assessment for water company drought plans	
This supplements the guidance provided on how to write and publish a drought plan. It provides guidance on how to develop an environmental assessment to support a Drought Plan. It includes the need to consider whether an SEA is required for a drought plan.	An SEA is being undertaken for the Drought Plan.
Defra (2011) The Natural Choice: securing the value of nature. The Natural Environment White Paper	
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	The Drought Plan supports the provisioning service of freshwater through ensuring security of supply during times of drought. The media campaigns that form part of the demand side Drought Plan options may contribute towards increasing the awareness of the population to the value the provisioning services of water. Other related ecosystem services may include:

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
Government, local communities and businesses. Approaches to mainstream the value of nature across society include: Facilitating greater local action to protect and improve nature; 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	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 Drought Plan effects the related provisioning services in the least damaging way through informing the Drought Plan formulation and selection of Drought Plan options during times of Drought.
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 Drought Plan 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 Drought Plan effects the related provisioning services in the least damaging way through informing the Drought Plan formulation and selection of Drought Plan options during times of Drought. 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 (2010), Making Space for Nature: 'The Lawton Report' 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 SEA should seek to maintain or enhance the quality of habitats and biodiversity.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
Defra (2009) Safeguarding our soils – A Strategy for England	
The 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. 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.	The SEA should seek to ensure that the quality of the regions soils and their management is protected or enhanced.
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.	The implementation of the Drought Plan may influence biodiversity in the southern water area and the south east and as such the SEA should seek to maintain or enhance the quality of habitats and biodiversity.
Defra (2008) Future Water: The Government's water strategy for England	
This strategy is the high level Government document which outlines how the Government wants the water sector to look by 2030, considering issues of water demand, water supply, water quality in the natural environment, surface water drainage, river and coastal flooding, greenhouse gas emissions and charging. That "by 2030 at the latest, we have: Improved the quality of our water environment and the ecology which 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 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.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
Defra (2019) The Clean Air Strategy	
The strategy identifies how government will tackle all sources of air pollution and is aimed at complementing the Industrial Strategy, Clean Growth Strategy and 25 Year Environment Plan. The strategy proposes new goals to cut public exposure to particulate matter pollution and sets out the comprehensive action that is required from across all parts of government and society to meet these goals. The proposed measures include new legislation and new local powers to take action in areas with an air pollution problem, including through the creation of 'Clean Air Zones'.	The implementation of the Drought Plan may have some influence on air quality, either directly or indirectly through construction or operation activities. The 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.
Defra (2011) Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services	
The objective for the next decade 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.' Four action areas are: A more integrated large-scale approach to conservation on land and at sea; Putting people at the heart of biodiversity policy; Reducing environmental pressures; and Improving our knowledge.	The SEA must consider impacts on biodiversity. The implementation of the Drought Plan may influence biodiversity in the area and as such the SEA should seek to maintain or enhance the quality of habitats and biodiversity, and have due regard to priority species.
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 SEA 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 SEA should seek to ensure that flood risk in the region is not adversely affected by the implementation of the Drought Plan.
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	The SEA must seek to ensure that objectives relating to sustainable

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
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.	development, sustainable resource use and protecting the natural environment, are considered when assessing the potential impacts of the Drought Plan.
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.	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.	The implementation of certain Drought Plan 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 (2011) Drought Plan Direction 2011	
The additional matters include a requirement that a Drought Plan needs to address 'the measures that may be needed to mitigate any adverse effect on the environment resulting from the implementation of a drought management measure'.	The Drought Plan and SEA to take account of this guidance.
The Energy Act 2013	
This provides the legislative framework for delivering secure, affordable and low carbon energy.	The implementation of the Drought Plan may have an influence upon Southern 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.
Environment Act, 1995	
The Environment Act set up the EA to manage resources and protect the environment in England and Wales	The SEA should seek to promote the protection and enhancement of all water

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
	resources without having negative effects on other aspects of the Environment.
Environment Agency (2020) National Flood and Coastal Erosion Risk Management Strategy for England	
This strategy describes what needs to be done by all risk management authorities (RMAs) involved in flood and coastal erosion risk management for the benefit of people and places. They must exercise their flood and coastal erosion risk management (FCERM) activities, including plans and strategies, consistently with the strategy. Through its 'strategic overview' role the Environment Agency exercises its strategic leadership for all sources of flooding and coastal change. This strategy seeks to better manage the risks and consequences of flooding from all sources.	The Drought Plan and SEA should ensure relevant flood and coastal erosion risk considerations are integral to management decisions across the range of temporal and spatial scales.
Environment Agency (2018) Creating a better place – Our ambition to 2020	
This sets out the EA's priorities for the environment to 2020, fully supporting the government's 25 year Environment Plan. The EA pledge's to work to deliver all ten of the goals laid out in the Environment Plan.	The SEA should seek to ensure that relevant goals 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; and People valuing water and the water environment.	The SEA should seek to ensure that strategy objectives are also reflected in the SEA objectives particularly regarding the sustainable management of water resources and protecting the environment.
Environment Agency (2009), Water Resources Strategy for England and Wales	
This is the national EA 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; Share existing water resources more effectively.	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.
Environment Agency (2020) EA2025 – Creating a Better Place	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
The plan sets out the EA's three long term goals for the environment between 2020 and 2025: A nation resilient to climate change; Healthy air, land and water; Green growth and a sustainable future.	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 (2013), Managing Water Abstraction	
This sets out how the EA manages water resources in England and Wales.	The SEA should consider the range of impacts that changes to abstractions could have on the environment, including water bodies, biodiversity, and water users.
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 water bodies achieving the relevant WFD objectives as a result of artificial influences on low river flows.	Implementation of the Drought Plan 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 Drought Plan 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 (2008) Sea trout and salmon fisheries. Our strategy for 2008 - 2021	
This strategy sets out how WFD fish objectives will be met. Results from this include: Self-sustaining sea trout and salmon in abundance in more rivers; Economic and social benefits optimised for sea trout and salmon fisheries; Widespread and positive partnerships, producing benefits.	The SEA should seek to protect and enhance salmon and sea trout fisheries.
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 SEA should seek to ensure that the guidance provided by the regulations is considered when assessing the Drought Plan.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
Applies to the most serious categories of environmental damage, including: Contamination of land that results in a significant risk of adverse effects on human health; Adverse effects on surface water or groundwater consistent with a deterioration in the water's status; Adverse effects on the integrity of a Site of Special Scientific Interest (SSSI) or on the conservation status of species and habitats protected by EU legislation outside SSSIs.	
Environmental Protection Act 1990	
This act addresses pollution control, waste (including duty of care), contaminated land, statutory nuisance and clean air.	The Drought Plan and actions arising from it such as construction activities must comply with this act.
The Eels (England and Wales) Regulations 2009 (as amended)	
Implement 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 seek to should seek to maintain or enhance the quality of habitats and biodiversity, and take regard of protected species identified. This should include migratory fish species and their migratory passage.
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 2020.	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 Drought Plan 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 Drought Plan and the SEA objectives
National	
Flood and Water Management Act, 2010 (as amended)	
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.	The Drought Plan also aims to ensure continuity of water supplies across the region are maintained.
Historic England (2019) Conservation Area Designation, Appraisal and Management: Historic England Advice Note 1	
This outlines ways to manage change that conserves and enhances historic areas in order to positively contribute to sustainable development and provides information on the relationship with local and neighbourhood plans and policies.	The SEA should consider the potential effects of the Drought Plan on the historic environment, particularly designated conservation areas. Sustainability issues, objectives and indicators identified in this document should be taken into account in the SEA.
Historic England (2016) 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 Drought Plan 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) 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 England (2016) Sustainability Appraisal (SA) and Strategic Environment Assessment (SEA): Historic England Advice Note 8	
This provides support to all stakeholders involved in assessing the effects of certain plans and programmes on the historic environment. It offers advice on heritage considerations during each stage of the SA/SEA process and helps to establish the basis for robust and comprehensive assessments.	The implementation of the Drought Plan may have an influence on the heritage of the region. The SEA should use the advice note to ensure any adverse effects on heritage assets are identified, and subsequently minimised or avoided.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
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 (2016) National Infrastructure Plan 2016 - 2021	
The Plan focuses on economic infrastructure: the networks and systems in energy, transport, digital communication, flood and coastal 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 competitiveness and to improve the quality of life of everyone in the UK. Objectives for the water and waste sector include to reduce average bills of about 5% in real terms, and plans for further expenditure from 2020 with the start of Asset Management Period 7.	The Drought Plan 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 Drought Plan can contribute to the providing resilient water services.
The Invasive Alien Species (Enforcement and Permitting) Order 2019	
The Invasive Alien Species (Enforcement and Permitting) Order allows for the enforcement of the EU Invasive Alien Species Regulation 1143/2014 on the prevention and management of invasive alien plant and animal species in England and Wales, including the relevant licenses, permits and rules for keeping invasive alien species.	The SEA should seek to address any potential issues or effects on existing measures to address invasive alien species.
Defra (2018) The National Adaptation Programme and the Third Strategy for Climate Adaptation Reporting	
The National Adaptation Programme (NAP) sets the actions that government and others will take to adapt to the challenges of climate change in the UK. It sets out key actions for the next 5 years. Flooding and pressure on water services are considered to be cross cutting risks, and Drought is referred to in terms of the risk to health and loss of forest productivity.	The SEA should consider the potential to include adaptive measures for climate change.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
The report also details how the third cycle of adaptation reporting will be managed, forming part of the five-yearly cycle of requirements laid down in the Climate Change Act 2008.	
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 Southern 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.
Natural England's standing advice on protected species (2016)	
This standing advice comprises a number of guides on the following protected species: Bats Great crested newts Badgers Hazel dormice Water voles Otters Wild birds Reptiles Protected plants White-clawed crayfish Invertebrates Freshwater fish Natterjack toads Ancient woodland and veteran trees	The SEA should seek to protect protected species and include this in the SEA objectives.
The Natural Environment and Rural Communities Act (NERC), 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 SEA should seek to maintain or enhance the quality of habitats and biodiversity. The impacts of the Drought Plan on any designated features, as highlighted in the Natural Environment and

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
The Natural Environment and Rural Communities Act is designed to help achieve a rich and diverse natural environment and thriving rural communities.	Rural Communities Act, should be addressed.
Planning (Listed Buildings and Conservation Areas) Act 1990	
This addresses listed buildings including prevention of deterioration and damage and preservation and enhancement of conservation areas.	The Drought Plan and SEA should take account of the need to protect listed buildings and conservation areas.
Regulators' Alliance for Progressing Infrastructure Development (RAPID) Forward Programme 2020 - 2021	
RAPID has been set up to identify and address issues relevant to the development of joint infrastructure projects and to analyse the feasibility of nationally strategic water supply schemes. These schemes have the potential to help meet the water needs set out in the National Framework for England. This forward programme sets out RAPID's delivery priorities for 2020-21 within a longer-term programme.	The SEA should seek to assess the implications of the Drought Plan in combination with climate change and the potential impacts on water resource resilience challenge.
Salmon and Freshwater Fisheries Act, 1975 (amended)	
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 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.	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 or effects on existing measures to address fish passage.
Historic England (2015) The Setting of Heritage Assets, Historic Environment Good Practice Advice in Planning 3	
This document sets out guidance, against the background of the NPPF, on managing change within the settings of heritage assets, including archaeological remains and historic buildings, sites, areas, and landscapes. It gives general advice on understanding setting, and how it may contribute to the significance of heritage assets and allow that	The Drought Plan and SEA should take account of the need to protect and enhance the setting of heritage assets.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
significance to be appreciated, as well as advice on how views contribute to setting.	
Natural Capital Committee (2020) State of Natural Capital Annual Report 2020	
The Natural Capital Committee is an independent advisory body to government. The report sets out the work carried out by the committee since March 2019; supporting a better understanding of England's natural assets and the benefits obtained from nature. The report has helped to ensure that natural capital is integrated into government policy.	The SEA should take into consideration report findings and recommendations.
Waste and Emissions Trading Act, 2003	
Under the Waste and Emissions Trading Act 2003, councils responsible for the disposal and collection of waste have a duty to develop a strategy which outlines how they manage municipal waste. The aim of the strategy is to change the way waste is managed, minimise landfill and drive new initiatives, with the aim of encouraging waste prevention and greater levels of recycling and composting.	The SEA should seek to promote sustainable waste management in line with objectives set out through the Act.
The Water Act, 2003 (as amended)	
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; and The promotion of water conservation.	The implementation of the Drought Plan 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.	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	The SEA should include objectives that cover hydromorphological aspects and seek

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
harm to aquatic ecosystems caused by the physical characteristics of a water course or lake, such as quantity, structure and substrate of river/lake bed. Aligns the Water Resources Act with the hydromorphological requirements of the WFD	to ensure that hydromorphological features within the plan are maintained or enhanced.
Wildlife and Countryside Act, 1981 (as amended)	
The Act is the principle mechanism for providing legislative protection of wildlife in Great Britain. 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.	Some aspects of the Drought Plan may have effects on habitats and species in the southern area supply area and beyond. The SEA should seek to maintain or enhance the quality of habitats and biodiversity, and take regard of protected species and habitats.
UK Technical Advisory Group (UKTAG) on the WFD Guidance Documents (various dates) 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 Drought Plan, 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 UKCP18. UKCIP, 2018	
The UKCP18 Projections provide a basis for studies of impacts and vulnerability and decisions on adaptation to climate change in the UK over the 21st century. The UKCP18 provides the most up-to-date assessment of how the UK climate may change in the future, projecting 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;	The SEA should also use UKCP18 projections in the broader assessment of climate change effects and any potential cumulative effects. For example, the ecological requirements of aquatic habitats that may be affected by the Drought Plan will also be influenced by climate change.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
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.	
Water Industry Act 1991	
This makes provision for general duties of water undertakers including those associated with water resources management plans and sets out supply duties.	The Drought Plan must take into account this legislation.
The Water Resources Management Plan Regulations 2007	
This provides the legislation for the preparation of water resources management plans.	The Drought Plan should take account of these requirements.
Defra (2002) Working with the grain of nature: a biodiversity strategy for England	
The Strategy seeks to embed biodiversity considerations into public policy and sets out a programme for the next five years to make the changes necessary to conserve and enhance biodiversity. The strategy sets out a number of indicators for biodiversity which are to be monitored by Defra, including the condition of Sites of Special Scientific Interest, populations of wild birds and progress with implementing biodiversity action plans (BAPs).	The implementation of the Drought Plan may influence biodiversity in the south east and as such the SEA should seek to maintain or enhance the quality of habitats and biodiversity, and take regards of NERC priority species.
Defra (2013) Catchment Based Approach: Improving the quality of our water environment	
DEFRA believe that better coordinated action is desirable at the catchment level by those who use water or influence land management and that this requires greater engagement and delivery by stakeholders at the catchment as well as local level. They highlight that this is particularly important when trying to address the significant pressures placed on the water environment by diffuse pollution.	The Drought Plan should take into account the contents of this paper and follow the catchment based approach where appropriate.
Environment Agency and RSPB (2004) Strategic Environmental Assessment and Biodiversity: Guidance for Practitioners	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
This guidance aims to ensure that biodiversity considerations are appropriately addressed in SEA. It emphasises how damage should always be avoided in the first instance, mitigating only where impacts cannot be avoided and there are no alternative solutions. In particular, damage and loss should be avoided where biodiversity is particularly high, rare, threatened and difficult to replace or substitute. Opportunities to enhance biodiversity should also be sought wherever possible.	The SEA should include objectives to protect and enhance biodiversity. The SEA should also seek to ensure that the Drought Plan considers biodiversity protection and enhancement as part of the WRMP formulation and selection of options.
Defra (2017) UK Climate Change Risk Assessment	
This report outlines the UK and Devolved Governments' views on the key climate change risks and opportunities that the UK faces. The report endorses the six priority risk areas identified in the independent evidence report by the Adaptation Sub-Committee: from flooding and coastal change; to health and well-being from high temperatures; due to water shortages; to natural capital; to food production and trade from pests and diseases and invasive non-native species. Specifically, the report sets out a series of challenges for the water industry. It states that: *"Climate change is projected to reduce the amount of water in the environment that can be sustainably withdrawn whilst increasing the demand for irrigation during the driest months. At the same time the growing population will create additional demands on already stretched resources in some parts of the country."*	The Drought Plan and SEA needs to take account of the key climate change adaptation risks and opportunities identified in relation to the water environment.
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;	The Drought Plan should be influenced strongly by these strategic objectives and should seek to take its aims into account.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
Protection: a nation better protected against floods, animal and plant diseases and other hazards, with strong response and recovery capabilities.	
Water UK (2015) Water resources long term planning framework	
The primary aim of the project is to develop a high level strategy and framework for the long term planning of water resources for Public Water Supply in England and Wales.	The SEA should seek to promote the protection and enhancement of all water resources.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
Local	
Natural England (2014) Site Improvement Plans (SIPs) for Habitats' sites: East Kent, parts of Sussex, Hampshire and the Isle of Wight.	
SIPs have been developed for each Habitats' site in England. They provide high level overviews of the issues affecting the condition of the Habitats' site 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 Habitats' site sites that may be affected by the Drought Plan and include the conservation and enhancement of designated sites in the SEA objectives.
(Various) Local Development Plans	
Local authorities produce Local Development Plans which provide guidance to developers on planning policy. The Local Development Plan contains a number of area wide policies to help shape new development, and it provides the strategic direction of growth. All Local Plans post -2012 need to demonstrate they are in conformity with the NPPF and therefore deliver sustainable development.	The SEA should take into account all relevant local planning policies that may have an effect on the Drought Plan. Local Planning Authorities within the study area are working to regenerate areas of deprivation and to deliver high levels of housing and economic growth. This will increase water demand but also provide an opportunity; new development will implement more stringent planning policies, therefore potentially encouraging improved water reuse and demand management opportunities.
Natural England (Various) National Character Area Profiles	
There are 159 Character Areas, each of which is distinctive with a unique 'sense of place'. These broad divisions of landscape form the basic units of cohesive countryside character, on which strategies for both ecological and landscape issues can be based. The Character Area framework is used to describe and shape	The SEA should take account of NCA profiles and include SEA objective relating to the protection of landscape character.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
Local	
objectives for the countryside, its planning and management.	
Defra and Environment Agency (2016) Catchment Flood Management Plans (CFMPs)	
Catchment flood management plans (CFMPs) consider all types of inland flooding, from rivers, groundwater, surface water and tidal flooding. CFMPs also include the likely impacts of climate change; the effects of how we use and manage the land; and how areas could be developed to meet our present day needs without compromising the ability of future generations to meet their own needs. CFMPs help the Environment Agency and their partners to plan and agree the most effective way to manage flood risk in the future.	The Drought Plan and SEA needs to take account of relevant CFMPs.
(Various) 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 6,000 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.	The SEA should consider the effects of the Drought Plan measures on the policies and any specific measures in the relevant Shoreline Management Plans for the SEA Area under consideration.
(Various) 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 6,000 kilometres of coast in England and Wales. This generation of plans aim to incorporate sea level rise resulting from	The SEA should consider the effects of the Drought Plan measures on the policies and any specific measures in the relevant Shoreline Management Plans for the SEA Area under consideration.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
Local	
climate change and current defences with limited life and improvement requirements.	
(Various) Catchment Management Strategies	
The Environment Agency assesses the availability of water resources for abstraction through the Catchment Abstraction Management Strategy (CAMS) approach. This approach determines how much water is reliably available for abstraction on a catchment by catchment basis. By taking into account the amount of water already licensed for abstraction and how much water the environment needs, the Environment Agency can determine how much water is potentially available for further abstraction. CAMS are an integral part of the Water Framework Directive's River Basin Management Planning . These strategies are reviewed and updated when required.	The Drought Plan and SEA needs to take account of these strategies.
Defra and Environment Agency (2015) River Basin Management Plans (RBMPs)	
RBMP's set out the current state of the water environment, identifying pressures affecting the water environment and environmental objectives for protecting and improving the waters programme of measures. RBMP's also informs decisions on land-use planning because water and land resources are closely linked.	The Drought Plan and SEA needs to take account of relevant RBMPs.
New Forest and South Downs National Park Management Plans	
Every National Park has a National Park Management Plan. Each Management Plan establishes shared objectives and priorities for 5-10 years ahead, and influences not only the work of the National Park Authority (NPA), but also a host of organisations that the Authorities work alongside. Objectives typically include: Conserve and enhance the wealth of individual characteristics that contribute to the local distinctiveness of the villages and landscapes of the National Park; Protect and enhance the large-scale cultural landscapes and semi-natural habitats of the National Park; and Encourage land management that sustains the special qualities of the National Park.	The SEA should take into account the presence of the New Forest and South Downs National Parks and potential effects of the Drought Plan. The SEA objectives should reflect those of the National Parks' Management Plans where relevant.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
Local	
(Various) Area of Outstanding Natural Beauty (AONB) Management Plans	
An AONB is an area of countryside in England, Wales or Northern Ireland which has been designated for conservation due to its significant landscape value through the Countryside and Rights of Way Act 2000. AONBs are designated in recognition of their national importance, by Natural England, Natural Resources Wales, or the Northern Ireland Environment Agency. AONBs are provided with a degree of protection from development similar to those of national parks and are largely managed by local authority advisory committees. Producing a Management Plan is a statutory requirement for every Area of Outstanding Natural Beauty (AONB). Its purpose is to: Highlight the special qualities and significance of the AONB; Present a vision for the future of the AONB. Set out objectives and policies to secure the vision; Identify what needs to be done, by whom and when; State the condition of the AONB and how the effectiveness of its management will be monitored; Reflect the views and aspirations of a wide range of AONB stakeholders and parties with an interest in it; and Co-ordinate the work of different partner organisations.	The SEA should take into account the relevant AONBs that may be affected by the Drought Plan and include the conservation and enhancement of nationally important landscapes in the SEA objectives.
(Various) Rights of Way Improvement Plans	
Most local authorities have a rights of way improvement plan. The plan sets out how improvements made by the local authority to the public rights of way network in your area will provide a better experience for these users: walkers cyclists horse riders horse and carriage drivers people with mobility problems people using motorised vehicles, eg motorbikes	The SEA should take account of the relevant public rights of way networks that may be affected by the Drought Plan and include the protection and enhancement of these in the SEA objectives.

Appendix C
Environmental Baseline

Introduction

Baseline data given below have been drawn from a variety of sources, including a number of the plans, policies and programmes reviewed as part of the SEA process. These sections also summarise the likely future trends for the environmental issues being considered (where information is available). The key issues arising from the review of baseline conditions are summarised in Section 3 of the main report.

Biodiversity, Fauna and Flora

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.

Drought management measures have the potential to affect biodiversity, flora and fauna due to the operational abstraction of water during times of water stress or due to impacts of any construction works required. The sensitivity of environmental features that can be affected by implementing drought management measures is site specific. A drought is transient and the deployment of a drought management measures would only be for a limited period of time. Therefore, the duration of effects on sensitive features and reversibility post drought are important considerations.

Designated Sites

There are a variety of sites that are designated at a European, national or local level as important for biodiversity, flora and fauna, falling within, or intersecting with, the study area. These include:

- 23 Special Protection Areas (SPA)[1] and 1 proposed SPA (Table C1)
- 51 Special Areas of Conservation (SAC)[2] and 0 proposed SACs (see Table C2)
- 18 Ramsar Sites and 1 proposed Ramsar site (Table C3)
- 564 Sites of Special Scientific Interest (SSSI)[3]
- 35 National Nature Reserves (NNR)[4]
- 281 Local Nature Reserves (LNR)[5]
- 14 coastline-related Marine Conservation Zones (MCZ)[6]

[1] 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

[2] Special Areas of Conservation (SACs) are 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.

[3] 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).

[4] 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.

[5] LNRs – places with wildlife or geological features that are of special interest locally.

[6] MCZs are designated offshore waters under the Marine and Coastal Access Act 2009 and protect a range of nationally important marine wildlife, habitats, geology and geomorphology.

- 1 Biosphere Reserve (Brighton and Lewes Downs)[7]
- 24 National Character Areas (NCA)[8]

Figure C1 shows the location of the European designated sites and Figure C2 shows the National designated sites.

Achieving nutrient neutrality for new development in the Solent Region

Of specific relevance in relation to the Drought Plan is the potential for new developments coming forward to have a significant effect on internationally designated sites (Special Protection Areas, Special Areas of Conservation and Ramsar sites) due to the increase in wastewater.[9]

In 2018 and 2019 Natural England undertook a number of condition assessments of the features of the designated international sites around the Solent (the Solent Maritime SAC, Chichester and Langstone Harbours SPA, Portsmouth Harbour SPA, Solent and Southampton Water SPA) as well as the nationally designated SSSIs that underpin these international designations.

The condition of Chichester Harbour and associated Solent Maritime SAC, Chichester and Langstone Harbour SPAs have been condition assessed, with results summarised in the Chi Review NERR090.[10] Overall, the main intertidal habitats and bird features are assessed as unfavourable declining condition largely due to the continued loss of saltmarsh, the poor quality of saltmarsh and mudflat habitat, and the continued decline of several bird species (wintering and nesting). While the cause of these site specific declines in the Solent area are largely unknown there are possible links to the elevated nutrient loading.[11]

The uncertainty about the impact of excessive nutrients on designated sites needs to be recognised for all development proposals that are subject to new planning permissions and have inevitable wastewater implications. These implications, and all other matters capable of having a significant effect on designated sites in the Solent, must be addressed in line with Regulation 63 of the Conservation of Habitats and Species Regulations 2017.

In addition to the Solent, nutrient neutrality advice has been published and applies to wastewater within the Stour Catchment that effect Stodmarsh designated sites. In addition, Natural England is working with Southern Water via their Drainage and Wastewater Management Plan (DWMP) to assess the likelihood of sites failing their conservation objectives on water quality, have a hydrological link to wastewater discharges and where there is significant growth. These are areas where the need for a nutrient neutral methodology cannot be ruled out.

Achieving nutrient neutrality is one way to address the existing uncertainty surrounding the impact of new development on designated sites. Natural England (2020) have released advice on how to calculate nutrient budgets and options for mitigation.[12]

[7] Biosphere Reserves are areas of terrestrial and coastal ecosystems promoting the conservation of biodiversity with sustainable use and serve to demonstrate integrated management of land, water and biodiversity.
[8] NCAs divide England into 159 distinct natural areas. Each is defined by a unique combination of landscape, biodiversity, geodiversity, history, and cultural and economic activity.
[9] Natural England (2020) Advice on achieving nutrient neutrality for new development in the solent region
[10] Natural England (2021) Condition review of Chichester Harbour sites: intertidal, subtidal and bird features (NERR090) [online] available at: http://publications.naturalengland.org.uk/publication/5535304204419072
[11] Ibid.
[12] Ibid.

Priority Habitats and Species

Habitats designated under the Natural Environmental and Rural Communities (NERC) Act[13] within the area include rivers and streams (e.g. sensitive chalk rivers), reedbeds, fens, lowland raised bog, coastal and floodplain grazing marsh, saltmarsh, mudflats, coastal lagoons, water meadows, and estuary features. Important water-related NERC species that have been identified from baseline data in the area are listed below (this list is not exhaustive).

- Otter
- Water vole
- Atlantic salmon
- European eel
- Sea/Brown trout
- River lamprey
- White clawed crayfish
- Depressed River Mussel
- Desmoulins Whorl Snail
- Snipe
- Lapwing
- Daubenton's Bat
- Pipistrelle Bat
- Blunt-leaved Pondweed
- Rice Cut-grass

Ancient Woodlands

Ancient woodlands in England 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 C2 and there is approximately 1,200 km^2 within the study area, which makes up about 8% of the total area.

Water Framework Directive - ecological status

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 ecological condition of water bodies.

Water abstraction and associated infrastructure can sometimes result in adverse effects on water-related sites. Impacts on biodiversity may be caused by 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. The WFD South Eastern River Basin District Management Plan (RBMP) identifies barriers to fish passage as one of the major issues affecting the ecology of rivers in the South East River Basin District, some of which are related to abstraction impacts on migratory flow conditions and/or abstraction infrastructure (e.g. intakes or weirs).

Future Baseline

It is not expected that many additional sites will be designated under international or national legislation over the life of the Drought Plan, with the focus therefore on achieving the conservation objectives set for each of these sites, and in a small number of cases in the area, the provision of compensatory habitat where development activities have led to an adverse effect on a European Site. Consideration should also be given to the uncertainty about the impact of excessive nutrients on the Solent. Where the Drought Plan has the potential to impact upon European sites in this respect, Natural England's advice on achieving nutrient neutrality should be utilised.

[13] Species or habitats of principal importance for the conservation of biodiversity in England, identified in the Natural Environmental and Rural Communities (NERC) Act 2006 Section 41. Species can be protected without being included on the S41 species list; all bats in Britain are protected under Schedule 5 of the Wildlife and Countryside Act of 1981.

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 priority habitats.

The uncertainty about the impact of excessive nutrients on designated sites needs to be recognised for all development proposals that are subject to new planning permissions and have inevitable wastewater implications. These implications, and all other matters capable of having a significant effect on designated sites in the Solent and Stour Catchment, must be addressed in line with Regulation 63 of the Conservation of Habitats and Species Regulations 2017.

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[14] 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 subsequent 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.

Climate change is likely to have an impact on wildlife in the future by exacerbating existing pressures such as changes to the timing of seasonal activity, and water scarcity. There is therefore a need to allow wildlife to adapt to climate change.

[14] Defra (2011) The Natural Choice: securing the value of nature. Natural Environment White Paper.

Table C1 Special Protection Areas (SPA) within the Study Area and intersecting with the Study Area boundary

Special Protected Area
Arun Valley
Ashdown Forest
Avon Valley
Chichester & Langstone Harbours
Dorset Heathlands
Dungeness, Romney Marsh & Rye Bay
Medway Estuary & Marshes
New Forest
Outer Thames Estuary
Pagham Harbour
Poole Harbour
Porton Down
Portsmouth Harbour
Salisbury Plain
Solent and Dorset Coast
Solent & Southampton Water
South West London Waterbodies
Stodmarsh
Thames Basin Heaths
Thames Estuary & Marshes
Thanet Coast & Sandwich Bay
The Swale
Thursley, Hankley & Frensham Commons (Wealden Heaths Phase I)
Wealden Heaths Phase II

Table C2 Special Area of Conservation (SAC) within the Study Area and intersecting with the Study Area boundary

Arun Valley
Ashdown Forest
Blean Complex
Briddlesford Copses
Buster Hill
Castle Hill
Chilterns Beechwoods
Dorset Heaths
Dungeness
East Hampshire Hangers
Ebernoe Common
Emer Bog
Folkestone to Etchinghill Escarpment
Great Yews
Hastings Cliffs
Isle of Wight Downs
Kennet & Lambourn Floodplain
Kennet Valley Alderwoods
Kingley Vale
Lewes Downs
Lydden & Temple Ewell Downs
Mole Gap to Reigate Escarpment
Mottisfont Bats
North Downs Woodlands
Parkgate Down
Peters Pit
Pevensey Levels
Pewsey Downs
Queendown Warren
River Avon
Richer Itchen
River Lambourn
Rook Clift

Salisbury Plain
Sandwich Bay
Shortheath Common
Singleton & Cocking Tunnels
Solent & Isle Of Wight Lagoons
Solent Maritime
South Wight Maritime
Stodmarsh
Tankerton Slopes & Swalecliffe
Thanet Coast
The Mens
The New Forest
Thursley, Ash, Pirbright & Chobham
Windsor Forest & Great Park
Woolmer Forest
Wye & Crundale Downs

Table C3 Ramsar Sites within the Study Area and intersecting with the Study Area boundary

Ramsar
Poole Harbour
Portsmouth Harbour
Pevensey Levels
Arun Valley
Avon Valley
Medway Estuary & Marshes
The Swale
New Forest
Pagham Harbour
Thames Estuary & Marshes
Chichester and Langstone Harbours
Stodmarsh
Thanet Coast & Sandwich Bay
South West London Waterbodies
Thursley & Ockley Bogs
Dungeness, Romney Marsh and Rye Bay
Dorset Heathlands
Solent & Southampton Water

Population and Human Health

Baseline

Population

The greater South East region is a densely populated part of the UK, with an estimated population of 9,180,135 in mid-2019.[15] Over the ten year period 2009 – 2019 the South East population increased by 8.1%.[16] The population is projected to increase to 9.5 million by 2028 (3.9% increase from the mid-2019 estimates).[17] Natural change (difference between births and deaths), net within-UK migration and net international migration are all positive for the South East. This is compared

[15] Office for National Statistics (2020) Estimates of the population for the UK, England and Wales, Scotland and Northern Ireland [online] available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalesscotlandandnorthernireland

[16] Ibid.

[17] ONS (2020) Subnational population projections for England: 2018-based - https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/subnationalpopulationprojectionsforengland/2018based#change-by-region

with other regions such as the North East and the South West where the growth rate is slowed down by negative natural change (more deaths than births). [18]

Considering the respective purposes of Water Resources Management Plans (WRMP) and drought plans, it is considered that the longer term issues relating to population growth represent key issues for the strategic nature of the WRMP rather than the more tactical, shorter duration drought plan. The awareness of the population in the region to drought conditions and the avoidance of emergency drought measures are considered key issues with respect to the Drought Plan and needs of the current and near-future population of the area.

Water is supplied by Southern Water to around 2.6 million people, within 1.1 million properties.[19] In addition, the companies average daily water supply is 542 million litres. Waste water is supplied by Southern Water to around 4.7 million people, within 2 million properties.[20] The average daily wastewater recycled is 745 million litres.

Human Health

The Drought Plan 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 operation of temporary infrastructure (e.g. pumps) and potentially any construction requirements. The Drought Plan also sets out measures to ensure that essential water supplies can be maintained to all of Southern Water's customers, thereby protecting public health in drought conditions.

Health-related sustainability indicators are reported in the annual Public Health England Health Profiles.[21] In general, the health of the population is good for the South East with the healthy life expectancy for both men and women increasing during the period of 2017 to 2019, reaching 80.8 years for men and 84.3 year for women. Water is considered a vital resource that is managed carefully to ensure both that people have access to affordable and safe drinking water and sanitation. Data relating to air quality, which could also be affected by the Drought Plan, and as a result affect health, are covered in the air quality section of this SEA Scoping Report.

Recreation and Tourism

There were over 218 million domestic day visitors a day to the South East within 2019.[22] This led to an expenditure of almost £8 million, making up 12% of total expenditure within the study area in 2019. Drought management measures have the potential to affect areas with recreation value. Impacts may arise from operational phases resulting in effects on water levels beyond those that may result from the 'natural' drought alone. Any potential construction requirements may include indirect reductions in amenity through reduced access or loss of areas of amenity value. Temporary water use restrictions (voluntary and statutory) may also adversely affect some recreational activities due to the suspension of external water uses such as watering of sports grounds.

Figure C3 shows some of the areas that may be used for recreation within, and intersecting with the study area. This includes National Trails, 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). Southern Water's surface water reservoirs are accessible to the public and provide a range of recreation facilities, including bird-watching, walking,

[18] Ibid.
[19] Southern Water (2020) Annual Report 2020 https://southernwater.annualreport2020.com/media/2081/sw-what-we-do.pdf
[20] Ibid.
[21] Public Health England (2020) Local Authority Health Profiles https://fingertips.phe.org.uk/profile/health-profiles/data#page/0/gid/1938132696/pat/15/par/E92000001/ati/6/are/E12000008/cid/4/tbm/1/page-options/ovw-do-0
[22] KANTAR (2019) The Great Britain Day Visitor 2019 Annual Report https://www.visitbritain.org/sites/default/files/vb-corporate/gbdvs_2019_annual_report_-_a.pdf

sailing or fishing. Some sections of rivers in the area are of particular importance with respect to navigation (e.g. the River Arun and Wey) and angling (e.g. River Test).

Public areas of open space, National Parks (see Landscape and Visual Amenity topic), country parks[23], Rights of Way, walking routes and cycle routes are also important with respect to recreation and tourism (e.g. South Downs Way national trail). The National Planning Policy Framework (NPPF) 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 LAs have therefore developed Green Infrastructure Strategies or Studies addressing these issues. Green infrastructure will often play a large part in local recreational resources.

Economy and Employment

The Greater South East region is a prosperous region of the UK and has relatively low rates of unemployment. The Greater South East region contributes around 14.5% of the total UK economy, and Gross Domestic Product (GDP) per head in the South East is £34,083, which is higher than the national UK average of £31,976.[24]

The South East region is one of the most densely populated and urbanised parts of the UK, where business services make up a significant proportion of the economy; however, agriculture is also one of the more important industries outside of Greater London. Some businesses that rely on water supply have the potential to be affected by the Drought Plan through a Temporary Use Ban or a Drought Order to ban prescribed non-essential water uses. However, the Drought Plan also sets out measures to maintain essential water supplies to all businesses during drought conditions to ensure most businesses can continue to operate without any disruption.

Future Baseline

Population is projected to grow at a rate by 3.9% across the South East (9 years from 2019 to 2028)[25].

In response to recent studies access to the recreational resources, green spaces and the historic environment will have greater importance in future planning[26]. 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

[23] Area designated for people to visit and enjoy recreation in a countryside environment
[24] ONS (2020) Regional economic activity by gross domestic product, UK: 1998 to 2018 https://www.ons.gov.uk/economy/grossdomesticproductgdp/bulletins/regionaleconomicactivitybygrossdomesticproductuk/1998to2018
[25] Office for National Statistics (2020) Estimates of the population for the UK, England and Wales, Scotland and Northern Ireland [online] available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalesscotlandandnorthernireland
[26] Defra (2011) The Natural Choice: securing the value of nature, The Natural Environment White Paper

a Green Infrastructure[27]. Partnership with civil society to support the development of green infrastructure in England. 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[28].

Material Assets and Resource Use

Baseline

Water Use

Southern Water supplies approximately 542 million litres of drinking water each day from its 84 water supply works along almost 14,000 kilometres of water mains to customers' taps.[29] In 2020, Southern Water achieved 99.95% (2019: 99.98%) compliance with the Drinking Water Inspectorate's (DWI's) water quality measures. Also in 2020, Southern Water's leakage was above target at 94 Ml/d (2019: 102 Ml/d). Although an improvement on 2019, the company's five-year target was missed out on, incurring a penalty of £2.7 million. This was due to the extreme weather of 2018 and 2019. Since then a reduction of 15% has been seen, which aligns with outline commitments made for 2020 – 2025. In 2019-2020 Southern Water have also been able to limit the number of customers' properties at risk of experiencing low pressure to 203, which is well below the 257 target.

Moving into the next five year period to 2025, Southern Water will continue running a Catchment First programme, working with farmers and landowners to design and deliver solutions that address water quality at the source, which will deliver benefits to all.[30]

Southern Water is actively pursuing measures to encourage its customers to reduce their water use and use water wisely, particularly in dry conditions, and made a commitment to customers in the business plan 2015–20 to achieve a 10% reduction (15 litres per person, per day) in average water use by 2020.[31] As the five-year period closed, an average water use of 126.5 litres per person was recorded, per day (2019: 129.9 litres). This is an improvement on 2018, when a long, hot summer led to a spike in consumption. It is also well below the target of 133.7 litres, and significantly lower than the UK average, which is still around 144 litres. Southern Water has invested significantly in installing water meters for a high proportion of its customers to encourage efficient use of water and it has an active programme to promote water conservation to both household and commercial properties. These measures are particularly relevant to the Drought Plan when water efficiency activity provides the greatest benefit to safeguarding water supplies. In 2020, 985,774 properties served by Southern Water were metered (approximately 90%).

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 in the South East region going to landfill has decreased by approximately 82% over the period 2008/9 to 2018/19 (1,975 thousand tonnes to 357 thousand tonnes).[32] Additionally, the waste sent to landfill was just 8.6% of total waste in 2018/19, compared to 45.6% in 2008/ 09. Household recycling rates in the South East have climbed to nearly 47% of waste generated (2018/19)[33], compared to 39.1% in 2008/ 09.

[27] 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.
[28] Defra (2012) The UK Climate Change Risk Assessment 2012 Evidence Report.
[29] Southern Water (2020) Southern Water Annual Report 2019 – 2020 https://www.southernwater.co.uk/the-news-room/the-media-centre/2020/july/southern-water-annual-report-2019-20
[30] Ibid.
[31] Ibid.
[32] Gov.uk (2020) Local authority collected waste generation from April 2000 to March 2019 (England and regions) and local authority data April 2018 to March 2019 https://www.gov.uk/government/statistical-data-sets/env18-local-authority-collected-waste-annual-results-tables
[33] Ibid.

In line with the widely adopted 'waste hierarchy'[34], 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 C4 below shows waste according to waste type in England 2014 – 16, and percentage change by type. Table C4 shows that waste from CDEW has seen the greatest increase between the two years. Tables C5 (below) to C6 (overleaf) provide further baseline information regarding waste.

Drought management measures which require infrastructure may result in the use of raw materials and the production of waste. The operation of drought plan measures may result in additional chemical use due to use of poorer quality raw water and the consequent production of waste through water treatment.

Table C4 Waste generation split by responsible economic activity in England, 2014-16 (million tonnes)[35]

	Commercial and Industrial (C&I)	Construction, demolition & excavation (CDEW)	Households	Other	Total
2014	38.7	130.3	26.8	18.2	**214.0**
2016	39.8	136.2	27.3	17.7	**221.0**
Percentage change	3.0%	4.5%	1.9%	-2.8%	**3.3%**

Table C5 Waste from households in England – 2015 - 2018[36]

England	Waste arisings ('000 tonnes)	Recycled ('000 tonnes)	Recycling rate (%)
2015	22,225	9,849	44.3%
2016	22,770	10,217	44.9%
2017	22,437	10,139	45.2%
2018	22,033	9,840	44.7%

www.gov.uk/government/uploads/system/uploads/attachment_data/file/481060/LA_and_Regional_spreadsheet_2014-15_publication.ods

[34] Defra (2011) Waste Hierarchy Guidance https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69403/pb13530-waste-hierarchy-guidance.pdf

[35] UK Statistics on Waste https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/918270/UK_Statistics_on_Waste_statistical_notice_March_2020_accessible_FINAL_updated_size_12.pdf

[36] Ibid.

Table C6 Municipal waste and Biodegradable Municipal Waste (BMW) to landfill in England 2015-2018[37]

England	Municipal waste to Landfill ('000 tonnes)	Of which BMW to Landfill ('000 tonnes)	BMW to Landfill as % of 1995 target baseline
2015	12,215	5,980	21%
2016	12,381	6,049	21%
2017	11,784	5,684	20%
2018	11,688	5,598	19%

Note: 1995 baseline for England 29,030,000 – no greater than 50% baseline by 2013 and 35% baseline by 2020.

Future Baseline

Southern Water aims to reduce leakage from its network over the next 25 years with several schemes planned to further reduce the amount of water lost through leaks. Southern Water has have improved overall water resilience by reducing the volume of asset outage, however, did not achieve the 2015- 20 five-year leakage target despite additional investment due to the unprecedented 2018 winter and droughts of 2018 and 2019. However, since 2018, a reduction of close to 15% in the most stressed part of the region has been recorded, which is the committed reduction percentage for the next five-year period. Southern Water's aim is to place no restrictions on customer's water use, such as Temporary Use Bans, unless there are at least two dry winters in a row.

The Government's national aspiration is to reduce water usage to an average of 130 l/h/day by 2030. Southern Water is already meeting this aspiration with an average of 126.5 litres per person was recorded, per day for the year 2020. Furthermore, the number of metered households served by Southern Water is now up to 985,774 properties (approximately 90%).

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 a binding landfill target to reduce landfill to maximum of 10% of municipal waste by 2030.

The Government's first National Infrastructure Plan[38] (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 2016, setting out progress to date whilst including detailed delivery plans to 2021 in key economic sectors[39].

[37] UK Statistics on Waste
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/918270/UK_Statistics_on_Waste_statistical_notice_March_2020_accessible_FINAL_updated_size_12.pdf
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/487916/UK_Statistics_on_Waste_statistical_notice_15_12_2015_update_f2.pdf
[38] HM Treasury Infrastructure UK (2010) National Infrastructure Plan
[39] HM Treasury (2014) National Infrastructure Plan 2016: https://www.gov.uk/government/publications/national-infrastructure-delivery-plan-2016-to-2021

Water

Baseline

In the context of the WFD, the water environment includes rivers, lakes, estuaries, groundwater and coastal waters out to one nautical mile. The aquatic environment of the South East and Thames River Basin 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[40]. 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.

The area is classified as water-stressed. All of the water that Southern Water supplies relies on rainfall, yet the South East is one of the driest regions in the country, with an average of 730 mm a year. The amount of rain in a year can vary widely from a maximum of 1,070 mm to a minimum of 340 mm.

Most of this rain falls between October and March and is critical to recharge groundwater each year. Rainfall during the rest of the year is usually taken up by plants, lost through evaporation or runs off the land. Southern Water has a variety of different water sources which react very differently to weather patterns.

Surface Waters: Rivers and Canals

The area under consideration lies within the South East River Basin District and partially within the Thames. The main rivers include the Test and Itchen in Hampshire, the Arun and the Western Rother in Sussex and the Medway and the Stour in Kent. River abstractions account for 23% of the Southern Water supply, most notably: the Medina and Eastern Yar on the Isle of Wight; the Test and Itchen in Hampshire; the Western Rother and Arun in West Sussex; the Eastern Rother and Brede in East Sussex; and the Teise, Medway and Great Stour in Kent.[41]

Surface water features within and intersecting the study area are shown in Figure C5.

Surface Waters: Lakes and Reservoirs

There are 28 lakes within the South East River Basin District, along with a small number of man-made reservoirs owned by various water companies. The four Southern Water surface water impounding reservoirs are responsible for 7% of Southern Water's supply: the largest is Bewl Water on the Kent/Sussex boundary, followed by Weir Wood, Darwell and Powdermill situated in Sussex. The total storage capacity of all the supply reservoirs amounts to 42,390 million litres (although South East Water are entitled to 25% of supplies from the River Medway Scheme which incorporates Bewl Water reservoir).[42] Ardingly, Arlington and Bough Beech reservoirs are also located in the area but are owned and operated by other water companies.

Transitional and Coastal (TraC)

The South East River Basin District includes 23 estuarine ('transitional waters') and eleven coastal water bodies as shown in Figure C5.

[40] Defra (2005) Water Framework Directive: Summary report of the characterisation, impacts and economics analyses required by Article 5, South East River Basin District
[41] Southern Water (2019) Water Resource Management Plan 2019: Technical Overview https://www.southernwater.co.uk/media/1332/dwrmp19-technical-overview.pdf
[42] Ibid.

Groundwater

The water supply in the area predominantly comes from the transmission and storage of groundwater, from the widespread chalk aquifer across the region. This extends throughout parts of Kent, Sussex and the Isle of Wight and makes up 70% of the total supply for Southern Water. The majority of supply comes from chalk aquifers but a small proportion comes from the Lower Greensand which are mainly sands and sandstones.

The Environment Agency considers that licensed groundwater abstraction is fully utilised over much of the South East river basin. 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.

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.

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.

SPZs and WFD groundwater bodies within and intersecting with the study area are shown in Figure C4.

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.

The Environment Agency use the CAMS work to assess and understand water resource availability. A classification system has been developed to indicate the following:
the relative balance between the environmental requirements for water and how much is licensed for abstraction;

- whether water is available for further abstraction; and
- areas where abstraction may need to be reduced.

The results have been mapped onto WFD Cycle 2 boundaries and are represented by different water resource availability colours showing the availability of water resource for further abstraction. Figure C6 shows the Environment Agency representation of resource availability based on the worst downstream water body at low flows (the flow percentile called Q95). It is apparent from Figure C6 that little surface water is actually available and the status of most rivers is identified as ‘water not available for licensing’ or ‘restricted water available for licensing’.

Water Framework Directive Classification

Since 2007, the health of water bodies 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 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).

The latest South East River Basin Management Plan (2015) shows that of 408 river water bodies within the area, with regard to their ecological status or potential, 5% were classified as 'bad', 24% as 'poor', 61% as 'moderate', 10% as 'good' and 0% as 'high'. 99% were classified 'good' for their chemical status (Table C7). In terms of the percentage of water bodies with 'good' or better ecological status in the study area, lakes were 29% (Table C8) and transitional water were 28% (Table C9).

Table C7Ecological and chemical classification for Rivers 2015 – Southern Water Study Area

RBD	No. of water bodies	Ecological status or potential					Chemical Status	
		Bad	Poor	Mod	Good	High	Fail	Good
Thames	163	9	40	106	8	0	3	160
South East	214	10	55	127	22	0	2	212
South West	31	3	4	15	9	0	0	31
Total for Study Area	**408**	**22**	**99**	**247**	**39**	**0**	**5**	**403**

Table C8 Ecological and chemical classification for Lakes and Reservoirs 2015 – Southern Water Study Area

RBD	No. of water bodies	Ecological status or potential					Chemical Status	
		Bad	Poor	Mod	Good	High	Fail	Good
Thames	37	0	5	25	7	0	0	38
South East	29	1	3	15	10	0	0	28
South West	11	0	0	6	5	0	0	11
Total for Study Area	**77**	**1**	**8**	**46**	**22**	**0**	**0**	**77**

Table C9 Ecological and chemical classification for Transitional water bodies 2015 – Southern Water Study Area

RBD	No. of water bodies	Ecological status or potential					Chemical Status	
		Bad	Poor	Mod	Good	High	Fail	Good
Thames	8	0	0	4	4	0	0	8
South East	23	0	2	16	5	0	2	21
South West	1	0	0	1	0	0	0	1
Total for Study Area	**32**	**0**	**2**	**21**	**9**	**0**	**2**	**30**

Out of 67 groundwater bodies in the study area, 33 of them are classified as good for quantitative status (49%) and 36 for chemical status (54%) (see Table C10 below). The main reason for poor quantitative status is that abstraction levels, mainly for public water supply, exceed the rate at which aquifers recharge[43].

Table C10 Chemical and quantitative classification for Groundwater 2015 – Southern Water Study Area

No. of water bodies	Quantitative status		Chemical status	
	Poor	Good	Poor	Good
67	34	33	31	36

It is noted that a review and update of the current RBMPs is underway, with consultation on the draft RBMPs expected to start later in 2021.[44]

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 other artificial sources. The Environment Agency's Flood Risk Maps available on its website show what is at risk of flooding, including people, economic activity and natural and historic environment[45]. There are two defined high flood risk areas – the City of Brighton & Hove and the Medway area. These are areas where there is a significant risk of flooding from local sources, such as surface water, groundwater and ordinary watercourses, combined with a significant population at risk of the effects of flooding.

The extreme floods of 2007 prompted the Pitt Review (2008) and the subsequent Flood and Water Management Act 2010 which in part regulates the implementation of sustainable drainage systems (SuDS) to increase infiltration and reduce flooding from surface water runoff. Since 2008, the Government have further recognised the importance of investing in flood risk and coastal management. Most recently, in 2020 the Government announced its long-term plan to tackle the

[43] Defra and The Environment Agency (2015), South East River Basin District River Basin Management Plan
[44] Defra and The Environment Agency River basin management plans: 2015 https://www.gov.uk/government/collections/river-basin-management-plans-2015
[45] Environment Agency (2013) Flood Risk Maps – Risk of Flooding from Surface water – Thames River Basin District: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/456969/LIT8979_FloodRiskMaps_Thames_SurfaceWater_v2.pdf and South East River Basin District https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/456968/LIT8974_FloodRiskMaps_SouthEast_SurfaceWater_v2.pdf

risks of flooding and coastal erosion.[46] The measures set out in the plan include an investment of £5.2 billion to create around 2,000 new flood and coastal defences to better protect 336,000 properties in England by 2027. The plan also includes £200 million for innovative projects such as sustainable drainage systems and nature-based solutions like temporary or permanent water storage areas which also boost wildlife. These will support 25 areas at risk of flooding to test and demonstrate innovative actions to adapt to a changing climate and improve their resilience. Of relevance to the study area, in Brighton, Hove, and Shoreham, £2 million will be spent to protect critical infrastructure on the south coast, including a power plant serving 300,000 homes and one of the largest cargo ports in the south of England. [47]

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.

Coastal saltmarsh is an important natural resource and ecosystem service. Through reducing wave energy close to tidal defences, it can provide demonstrable flood and coastal risk management benefits, as well as supporting wildlife habitats and species of national and international significance. Saltmarsh habitat extent is conserved and enhanced through management measures driven in particular by the Habitats and Birds Directives and the WFD. The Drought Plan has the potential to affect saltmarsh extent due to changes in river flows draining to estuarine environments.

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 assessed; no deterioration between status classes is permitted unless certain and specific conditions apply.

Climate change is considered likely to adversely impact on surface and groundwater resources over the longer term, with some modest impacts potentially arising over the medium term to 2040. The Catchment Flood Management Plans (CFMP)[48] assumes the following key trends:

- Milder wetter winters resulting in increases in peak river flows of 20%, meaning that flooding will happen more often and large scale severe flooding will be more likely to happen.
- More frequent, short duration intense storms in summer causing more widespread and regular flash flooding from overwhelmed drainage systems and some rivers.

The NPPF[49] states that inappropriate development in areas at risk of flooding (in Flood Zone 1[50], Flood Zone 2[51], Flood Zone 3a[52] 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[53].

[46] Defra (2020) Multi-billion pound investment as government unveils new long-term plan to tackle flooding https://www.gov.uk/government/news/multi-billion-pound-investment-as-government-unveils-new-long-term-plan-to-tackle-flooding
[47] Ibid.
[48] Environment Agency (2009) South East River Basin District Catchment Flood Management Plans. https://www.gov.uk/government/collections/catchment-flood-management-plans#south-east-river-basin-district
[49] Department for Communities and local Government (2012) National Planning Policy Framework: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf
[50] Low probability of river or sea flooding (<0.1%) which has critical drainage problems
[51] Medium probability of river (1%-0.1%) or sea flooding (0.5%-0.1%)
[52] High probability of river (>1%) or sea flooding (>0.5%)
[53] Communities and Local Government (2012) Technical guidance to the National Policy Planning Framework

The region is already water-stressed and projected economic and population growth will likely place further pressure on the region's water resources and water dependent environments.
There is potential for an increased need for wastewater treatments as a result of WFD water quality standards combined with population increase. Given the energy intensity of wastewater treatment, the water industry CO2 emissions may increase and further contribute to climate change. However it is recognised that regulations and legislation will likely continue to promote the reduction in emissions through commitments to net zero. The water industry in the UK is aiming to become net zero by 2030.[54]

Soil, Geology and Land Use

Baseline

Geology

Geological sites maybe sensitive to changes in water quality, water levels (for example waterlogged deposits), pollution and land use practices. The study area is geologically diverse and includes a number of major aquifers including major chalk aquifers and interbedded sandstones and siltstones (see Figure C4).

Geological Conservation Review (GCR) sites have been highlighted, which relate to geological important sites, related to their scientific elements and understanding of earth sciences, which are important on a national and international level[55]. GCRs are also designated as SSSIs. Several geological SSSIs are found within the area, however some are not directly designated because of geology, although the geological variation does impact on the flora present. The main reason for a geological citation for an SSSI are related to disused quarries and geological important sites such as gravels and cliffs. There are 159 GCRs within the study area.

Soils

The majority of rural land in the study area is farmed, and it is noted that 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 C7 that the majority of agricultural land is classified as Grade 3 or higher. 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.

Future Baseline

The vision of Defra's Soils Strategy for England[56] 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.

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[57]. The Water White Paper also identified that the strategic policy statement for Ofwat and revised social and environmental guidance would 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. These policy objectives were reflected in development of catchment partnerships across England (including in the study area) to implement the catchment-based approach and in the support

[54] Water UK (2020) Water industry plans to reach net zero carbon by 2030 https://www.water.org.uk/news-item/water-industry-plans-to-reach-net-zero-carbon-by-2030/
[55] http://jncc.defra.gov.uk/page-2947
[56] Defra (2009), Safeguarding our soils – A Strategy for England
[57] Defra (2011) Water for Life - Water White Paper

for catchment management schemes in the 2014 water company price review process for Southern Water and other water companies in the area.

One of the core planning principles of the National Policy Planning Framework (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 with respect to Green Belt policy, the aim of which is to prevent urban sprawl by keeping land permanently open. 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. Although the NPPF promotes a presumption in favour of sustainable development, this does not apply where proposed developments may affect European or other designated sites covered by specific policies.

Air and Climate

Baseline

Local Air Quality

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

The baseline situation can be best described through reference to the local authorities that have declared Air Quality Management Areas (AQMA). A local authority declares an AQMA when UK National air quality objectives are unlikely to be met. The local authorities in the study area which have declared an AQMA within their boundaries are illustrated in Figure C8. There are 123 AQMAs in total within, and intersecting with, the study area. The majority of the AQMAs have been declared because of emissions from Nitrogen dioxide (NO2) and Particulate Matter (PM10).[58]

The Air Pollution Information System (www.apis.ac.uk) will be consulted during the assessment process to help understand the baseline 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). National and regional CO_2 emissions totals are provided in Table C11 below and are apportioned to their source categories in Table C12 (overleaf).

Table C11Carbon dioxide emissions by area (2018)[59]

Area	Annual CO_2 Emissions / million tonnes	Annual CO_2 Emissions (% of UK total)
South East	12.4	12.5%
South West	26.7	7.7%
East of England	32.4	9.4%
London	28.9	8.4%
UK	**344.8**	**100%**

[58] Defra List of Local Authorities with AQMAs https://uk-air.defra.gov.uk/aqma/list
[59] Department for Business, Energy & Industrial Strategy (2020) UK local authority carbon dioxide emissions estimates 2018 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/894785/2005-18-local-authority-co2-emissions-statistical-release.pdf

Table C12 End-user carbon dioxide emissions by sector (2018)

Area	Percentage Contribution by Source Sector					
	Industry & Commercial % (millions tonnes)	Domestic % (millions tonnes)	Road Transport % (millions tonnes)	LULUCF* % (millions tonnes)	Total	Change from previous year
South East	27.4% (11.7)	31.3% (13.3)	46.1% (19.7)	-4.4% (-1.9)	42.7	-2%
South West	30% (8.2)	28.9% (7.7)	9.4% (2.5)	-3.0 (-0.8)	26.7	-2%
East of England	29.3% (9.5)	27.5% (8.9)	44.1% (14.3)	-0.6% (-0.2)	32.4	-1%
London	36% (10.4)	37.3% (10.8)	26.6% (7.7)	-0.34% (-0.1)	28.9	-2%
UK	**38.6% (133.3)**	**28% (96.4)**	**36.8% (126.8)**	**-3.39% (-11.7)**	**344.8**	**-2%**

* Land Use, Land Use Change and Forestry

Southern Water is one of the largest users of energy in the South East due to the significant amounts of energy needed to pump water and wastewater and treat it to high quality standards. In 2019–20, carbon emissions produced by Southern Water reduced; recorded at 189 kilotonnes of CO2e for 2019–20.[60] This is down from 200 kilotonnes in 2018–19. The reduction seen was principally due to the reducing greenhouse gas content in the power that we buy from the grid. Southern Water's 2020-2025 Business Plan sets a target level of 24% total renewable energy electricity based on the efficient level.[61] The forecast performance for this measure in 2019-20 is 17.5%.

Forecast future climate change is likely to influence processes within the hydrological cycle such as runoff and evapotranspiration. The impact of climate change on the water environment and water-related infrastructure is summarised in Table C13 overleaf.

[60] Southern Water (2020) Annual Report and Financial Statements for the year ended 31 March 2020 https://www.southernwater.co.uk/media/3632/southernwater_ar2020-150720.pdf
[61] Southern Water (2020) Our Business Plan 2020 - 2025 https://www.southernwater.co.uk/our-story/our-plans-2020-25/our-business-plan-2020-25

Table C13 Potential impact of climate change on the water environment and water-related infrastructure

Sector	Impact
Water Resources (i). water supply (ii). water demand	Reduction in yields, either in total or at certain times of the year. Increased evaporation losses from surface water stores Increased sediment and pollution runoff into watercourses. Increased risk of algal blooms and pollution in reservoirs. Increase in demands in summer months leading to increase in average and peak requirements. Increased pressure on treatment and distribution system. Increased requirements for agriculture.
Flood management	Increased riverine storm occurrence and flood risk. 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 instream ecosystems and water abstractions. Altered potential for polluting incidents. Increased potential for combined sewer overflows due to an increase in extreme storm occurrences.
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.

Drought options could influence CO_2 emissions through additional pumping and treatment requirements. The Drought Plan is a tactical response plan that sets out to ensure the maintenance of essential water supplies during times of drought, which may become more prevalent and intense due to the effects of climate change. The Drought Plan itself functions as a form of adaptation to some of the effects of climate change.

Adaptation to Climate Change

The UK Climate Change Risk Assessment (CCRA) 2017 Evidence Report[62] presents the Government's second assessment of the risks and opportunities for the UK of the current and predicted impact of climate change, which follows on from the first report published in 2012. It draws primarily on an independent Evidence Report commissioned from the Adaptation Sub-Committee by the UK and the Devolved Governments.[63] The assessment findings indicate that the greatest need for early adaptation action (i.e. within the next 5 years) is in the following areas:

- Flooding and coastal change risks to communities, businesses and Infrastructure
- Risks to health, well-being and productivity from high temperatures
- Risks of shortages in the public water supply, and for agriculture, energy generation and industry
- New and emerging pests and diseases, and invasive non-native species, affecting people, plants and animals

[62] Defra (2017) The UK Climate Change Risk Assessment 2017 Evidence Report https://www.theccc.org.uk/uk-climate-change-risk-assessment-2017/
[63] Committee on Climate Change (2016) UK Climate Change Risk Assessment 2017 Evidence Report can be accessed at: www.theccc.org.uk/UK-climate-change-risk-assessment-2017/

- Risks to natural capital, including terrestrial, coastal, marine and freshwater ecosystems, soils and biodiversity
- Risks to domestic and international food production and trade

Future Baseline

Government and international targets 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)[64]. Southern Water commit through their latest Annual Report (2020) to focusing on reducing carbon emissions to get closer to net zero, in line with the Water UK Public Interest Commitment to achieve net zero emissions by 2030.[65]

Objectives are being achieved for many air pollutants (lead, benzene, 1,3-butadiene and carbon monoxide (CO)). Measurements also show that urban background and roadside particulate pollution (PM10) has shown long- term improvement, with stable concentrations observed from 2015 to 2019 for both roadside and urban background sites. A substantial network for fine particulate matter (PM2.5) has been operational since 2009 which shows a similar trend. [66]

In relation to NO2, urban background and roadside nitrogen dioxide (NO2) pollution has shown long-term improvement. There were also on average fewer hours of 'Moderate' or higher levels of nitrogen dioxide pollution in 2019 compared with 2018 at roadside sites. Public transport improvements, national air quality targets and European emissions standards for new vehicles should contribute to further reducing future air quality impacts from motor vehicles. However new development, economic growth and tourism may lead to increased car journeys and congestion leading to localised air quality effects.

Urban background ozone pollution has remained fairly stable between 2003 and 2019 and rural background ozone pollution has shown no clear long-term trend.

The 2018UK Climate Projections (UKCP18 – which remain the most up-to-date projections currently available for the UK) estimate that summers in the south of England are likely, on average, to be hotter and drier which could affect the frequency and severity of drought events.[67]

Historic Environment

Baseline

Implementation of drought management measures could affect historic landscape character and historic structures associated with the water environment and the historical context of their setting. Archaeological remains are sensitive to changes in water quality, water levels (for example waterlogged deposits), pollution and land use practices.

The study area is rich in heritage with listed buildings, scheduled monuments, conservation areas, registered parks and gardens, registered battlefields, protected wrecks and an internationally

[64] DECC (2015) Updated energy and emissions projections 2015 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/501292/eepReport2015_160205.pdf
[65] Southern Water (2020) Annual Report and Financial Statements for the year ended 31 March 2020 https://www.southernwater.co.uk/media/3632/southernwater_ar2020-150720.pdf
[66] Defra (2020) Air Quality in the UK, 1987 to 2019 – Summary https://www.gov.uk/government/publications/air-quality-statistics/summary
[67] Defra, Department for Business, Energy and Industrial Strategy and The Environment Agency (2020) UK Climate Projections (UKCP) 2018 https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/index

recognised World Heritage Site[68] (Canterbury Cathedral). Heritage designations within, and intersecting with, the study area are shown in Figure C9 and further detailed in Table C14 overleaf.

Table C14 Heritage assets within and interesting with the study area

Asset	Description	Study Area
World Heritage Site	The United Nations Educational, Scientific and Cultural Organization (UNESCO) seeks to encourage the identification, protection and preservation of cultural and natural heritage around the world considered to be of outstanding value to humanity.	2
Scheduled Monuments	Scheduled Monuments are protected under the Ancient Monuments and Archaeological Areas Act 1979. The monuments are scheduled and recorded through Historic England, based on national importance and covering a diverse range of archaeological sites. Scheduled monuments are often in a ruinous or semi-ruinous condition or take on the form of earthworks. More complete structures of national significance are usually protected as listed buildings.	2,732
Listed Buildings	The statutory responsibility for listed buildings control lies with the individual Local Authorities. The Department for Digital, Culture, Media and Sport is responsible for compiling the statutory list of buildings of special architectural or historic interest and each building or structure of interest is classified under one of three Grades; I, II* and II depending on their significance (Grade I assessed as highest significance).	59,589
Heritage Coasts	Heritage coasts are 'defined' rather than designated. They were established to conserve the best stretches of undeveloped coast in England. A heritage coast is defined by agreement between the relevant maritime local authorities and Natural England.	5
Registered Historic Parks and Gardens	Historic England maintains a register of historic parks and gardens of special interest in England, these parks and gardens are as equally important as buildings and settlements and form part of an area's cultural heritage. However, unlike listed buildings and conservation areas, historical parks and gardens are not afforded legal protection within the UK. The registration of these historic parks and gardens is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any	305

[68] World Heritage Sites are places of international importance for the conservation of mankind's cultural and natural heritage. The World Heritage List was set up by the World Heritage Convention, established by UNESCO in 1972. www.english-heritage.org.uk

	proposed development on the landscapes' special character.	
Registered Historic Battlefields	Historic England holds a Register of Historic Battlefields. Its purpose is to offer battlefields protection through the planning system, and to promote a better understanding of their significance and public enjoyment.	5
Protected Historic Wrecks	The Protection of Wrecks Act (1973) allows the Government to designate a wreck to prevent uncontrolled interference. Designated sites are identified as being likely to contain the remains of a vessel, or its contents, which are of historical, artistic, or archaeological importance.	3

Conservation Areas are usually designated by the local planning authority, or Historic England (previously known as English Heritage). They are designated for their special architectural and historic interest. Conservation Areas can include historic town and city centres, fishing and mining villages, 18th and 19th century suburbs, model housing estates, country houses set in historic parks and/or historic transport links and their environment.

According to Historic England, there are approximately 10,000 conservation areas in England.[69] Data gathered in 2017 (Figure C1 below) shows the distribution of conservation areas by authority area. In terms of the study area, Figure C1 overleaf shows that the City of Canterbury is the only authority area with over 75 conservation areas present. The majority of the study area has relatively low conservation area presence when compared with the rest of the country.

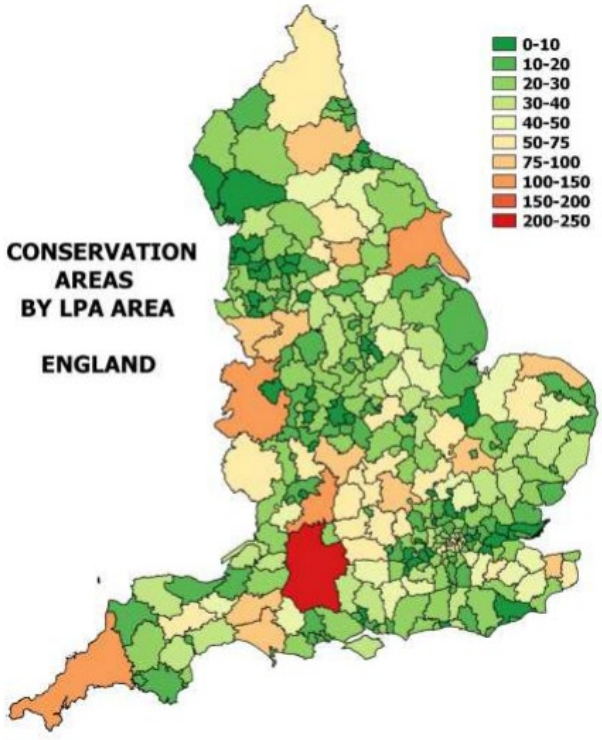

Figure C1 Conservation Areas by Local Planning Authority area (England)[70]

[69] Historic England (2020) Conservation Areas https://historicengland.org.uk/advice/hpg/has/conservation-areas/

[70] Leo Hall (2017) A new inventory of English Conservation Areas http://www.bedfordpark.net/leo/planning/A%20new%20inventory%20of%20English%20Conservation%20Areas.pdf

Individual local authority information will be used to identify specific conservation areas that may be affected by drought management measures.

Historic England collects data on buildings at risk. Within the region of London and the South East, there are currently 1,120 designated assets on the Heritage at Risk (HAR) register.[71]

Historic Environment Record (HER) databases linked to a Geographic Information System (GIS) are held by County Councils, District Councils or Unitary Authorities. They represent unique repositories of, and signposts to, information relating to landscapes, buildings, sites and artefacts spanning from the Palaeolithic period to modern times. Presenting this wealth of information for the study area would be difficult, however, it will be interrogated to assess whether any drought plan measures have the potential to affect such assets.

In relation to unknown assets, waterlogged conditions preserve waterlogged archaeology, such as wooden artefacts and structures such as trackways. Remains may be rain-fed or groundwater fed. If the latter, then clearly abstraction levels can be a critical factor in maintaining conditions in which preservation of the remains is viable. In addition, there are waterlogged deposits that are specifically associated with chalk, such as springs and their intimately associated wetlands which again can contain important archaeological information, especially palaeo-environmental evidence. Such water-dependent heritage assets will be considered when assessing potential drought plan measures.

Future Baseline

The NPPF was introduced in 2012to 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, recognising that "*these assets are an irreplaceable resource, and should be "conserved 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"*[72].

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[73].

Landscape and Visual Amenity

Baseline

The landscape character network[74] 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). 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

[71] Historic England (2020) Heritage At Risk Register https://historicengland.org.uk/advice/heritage-at-risk/search-register/results/?advsearch=1&region=London%20and%20South%20East&searchtype=harsearch
[72] MHCLG (2019) National Planning Policy Framework, Communities and Local Government. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf
[73] English Heritage (2010) Climate Change and the Historic Environment
[74] www.landscapecharacter.org.uk, accessed 14th July 2006

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.

Implementation of drought options has the potential to influence landscape and visual amenity, for example, effects on water levels in rivers beyond those occurring naturally as a result of the drought alone. Nationally designated landscape sites (including AONBs, National Parks and Green Belt) and Natural England National Character Areas (NCAs) are shown on Figure C10 for the study area.

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' . 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 the AONB is 'to conserve and enhance the natural beauty of the landscape.' There are eight AONB within or partially within the study area, these are listed below and summarised in Table C15.

- North Wessex Downs
- Isle of Wight
- Chichester Harbour
- Surrey Hills
- Kent Downs
- High Weald
- Cranborne Chase & West Wiltshire Downs
- Dorset (part)

National Parks are areas protected due to their beautiful countryside, wildlife and cultural heritage. The New Forest National Park and South Downs National Park are located within the area. National Parks within, and intersecting with, the study area are detailed in Table C16.

The main characteristics of Green Belt is their openness and their permanence. The main aim of Green Belt policy is to prevent urban sprawl by keeping land permanently open. The Green Belt therefore aims to check the unrestricted sprawl of large built-up areas; prevent neighbouring towns merging into one another; assist in safeguarding the countryside from encroachment; preserve the setting and special character of historic towns; and assist in urban regeneration, encouraging the recycling of derelict and other urban land. Green Belt areas are shown on Figure C10.

Natural England National Character Areas and Heritage Coasts

Natural England National Character Areas also take account of landscape (also referred to in the Biodiversity, Flora and Fauna topic). These are shown geographically in Figure C9, and Table C17 summarises their key features.

A Heritage Coast is a section of coast exceeding one mile in length that is of exceptionally fine scenic quality, substantially undeveloped and containing features of special significance and interest. They are agreed between Natural England and the local authority. These are five Heritage Coast areas shown geographically in Figure C9.

Tranquillity Areas

'Tranquillity' can be defined as the quality of calm that is experienced by people in places full of the sites and sounds of nature. The Campaign for Rural England (CPRE) developed tranquillity mapping

for England to identify areas that are either disturbed or undisturbed by urban areas (towns and cities), traffic (road, rail and airports), power stations, pylons, power lines and open-cast mines[75].

Future Baseline

The pressures for housing in many parts of the study area, there are likely to be some threats to visual amenity more broadly beyond designated landscape areas (including within Green Belt). 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.

Table C15 Areas of Outstanding Natural Beauty within, and intersecting with, the Southern Water Study Area

Name of Site	Key Characteristics
Kent Downs	The Kent Downs AONB is a strip of rolling countryside that from Dover on the east coast of England and meets up with the Surrey Hills AONB. Crossed by 3 river valleys – the Darent, the Medway and the Stour. The AONB is orientated SE by NW and follows two ridge outcrops of greensand and chalk. This geology has an impact of the habitats above, and forms heathlands and acid woodlands, and grasslands, scrub and broadleaf woodlands respectively. The Archaeology of the area is very interesting, and the AONB holds the remains of many invasions of England. The area also is home to traditional Kentish orchards and hop gardens. The AONB is flanked by the urban areas of Ashford, Maidstone and Medway towns. The North Downs Way National Trail traverses the back of the escarpment.
North Wessex Downs	Includes the uplands of Marlborough, Berkshire and North Hampshire Downs. Richly farmed landscapes including Pewsey Meadows. Includes the Neolithic stone circle at Avebury and other important archaeological sites, as well as the White Horse of Uffington. Recreation resource – at Avebury, also Ridgeway National Trail and Kennet and Avon Canal.
Surrey Hills	Predominately made from chalk landscapes, open unimproved heath, deciduous woodland. Recreation resource – Box Hill and Devil's Punch Bowl, Greensand Way and North Downs National Trail, and 'Gateway to the South Downs' The urban areas of the area are predominately commuter towns, with transport links to Portsmouth and London
Isle of Wight	The Isle of Wight AONB is scattered across the Isle of Wight island, cropping up in the centre and south downlands, and paleontologically important coastline. The AONB is predominately located on the island's white, chalky upfolds, and include the famous sea stacks of the Needles, and also incorporates the salt marshes and mudflats of the heritage coast as well as chalk downland, arable farmland, wooded dairy pasture, small areas of heathland and hay meadows, sea cliffs and creeks. Four fifths of the island are rural farmland, which is typically heavily weighted to the grazing of sheep and cows.

[75] CPRE tranquillity mapping for England: http://www.cpre.org.uk/what-we-do/countryside/tranquil-places

Name of Site	Key Characteristics
	The island is a popular tourist destination, and the Isle of Wight coastal footpath and other trails run through much of the AONB.
Chichester Harbour	This AONB is composed of a series of tidal inlets that back onto the South Downs. Mudflats and saltmarshes in the area are home to around 55,000 birds. Many pretty villages are dotted along the coastline, which is also home to 12,500 boats. The village of Selsey boasts some fossil hunting locations. Other leisure activities in the area are those typically associated with the seaside.
High Weald	The AONB is composed of remote ancient woodland and patchwork fields which cover rolling hills of sandstone and clay, open heathland, descended of old hunting ground, and scattered farms and hamlets. The area is traversed by the valleys of the Rother, the Brede and the Tillingham rivers. The High Weald is home to many medieval and historically important landscapes. The area depends heavily upon agriculture and forestry, though several commuter towns do exist within its bounds.
Cranborne Chase and West Wiltshire Downs	Cranborne Chase is a chalky landscape with both rolling topography and steeply cut valleys. Wiltshire downs (to the north) consists of large ridges and elegant knolls. Ecologically important area as home to fens and river meadows, deciduous former hunting forests, and ancient downland. The AONB is home to a rich cultural history including C18 and C19 stately homes, ancient monuments and prehistoric archaeological sites. This AONB has a distinct lack of urbanisation, with the main industries being agriculture and forestry.
Dorset	The Dorset AONB is made up of inland ridges and valleys, and chalky ridge, limestone plateaus and sand heathland near the coast The Dorset coast is famous for its limestone and sandstone, geology that has formed famous landscapes of Durdledoor, Lulworth Cove and Chesil beach. This geology is often fossiliferous and contains important 185ma vertebrate fossils giving it its name of ‘the Jurassic Coast’, the first British Natural World Heritage Site. Inland, the heathlands and downlands are scientifically important and contain many SSIs, NNRs and rare flora and fauna as well as many archaeological sites, including the Iron Age fort of Maiden Castle. The area has a strong tourism industry with several million visitors a year, but the main industries are agriculture and mineral related.

Table C16National Parks within the Southern Water Study Area

Name of National Park	Key Characteristics
New Forest	The New Forest National Park is includes one of the largest remaining tracts of unenclosed pasture land, heathland and forest in the heavily populated south east of England. It covers southwest Hampshire and extends into southeast Wiltshire and towards east Dorset.
South Downs	The South Downs National Park, covers an area of 1,627 km2 in southern England, stretching for 140 kilometres from Winchester in the west to Eastbourne in the east through the counties of Hampshire, West

Sussex and East Sussex. The national park covers the chalk hills of the South Downs and a substantial part of a separate physiographic region, the western Weald, with its heavily wooded sandstone and clay hills and vales. The South Downs Way spans the entire length of the park and is the only National Trail that lies wholly within a national park.

Table C17 Natural England National Character Areas (NCAs) within the Southern Water Study Area

National Character Area Name	Key Characteristics
Chilterns	The Chilterns NCA is a predominantly wooded and farmed landscape with an underlay of chalk bedrock rising from the London Basin and offering wide views over adjacent vales. River Thames breaches escarpment to the south at Goring Gap, flowing past riverside towns such as Henley. The surrounding countryside is an area utilised for agriculture interspersed with woodland and hedged boundaries. Parts of Chilterns area furthest from London are recognised as special and attractive, falling within the Chilterns AONB. Major urban fringe and growth areas such as Luton and Hemel Hempstead are located within the Chilterns NCA, although outside of these AONBs.
North Kent Plain	The North Kent Plain is a strip of open, low and gently undulating land between the Thames Estuary to the north and the chalk of the Kent Downs to the south. It is a highly productive agricultural area with good quality soils used predominately for arable farming. Ancient woodland surrounds Blean, with additional woodland further west. Despite this, the landscape is mostly open and expansive, leading to the area being called as the “Garden of England”.
North Downs	Forming a chain of chalk hills, the North Downs NCA extends from Hogs Back in Surrey to the famous White Cliffs of Dover. The settlements in the area consist of traditional small villages and farms while twisting sunken lanes cut across the scarp and are a feature of much of the dip slope. The beauty of the area is reflected by its location within the Kent Downs and Surrey Hills AONB.
Thames Basin Lowlands	The Thames Basin Lowlands is a low lying plain situated within the London Basin between the suburbs of South Norwood and Hale, located on the Surrey/Hampshire border. Overall the landscape is largely flat, with small sections of gently undulating land. The underlying geology consists mostly of London Clay, with small outcrops of Bracklesham and Barton Group sand, silt and clay between Esher and Cobham. Part of the North Downs Chalk bedrock, fringed with Thanet Formation and Lambeth Group sediments, underlies Croydon and Sutton.
High Weald	High Weald NCA is covered by ancient countryside and cited as one of the best surviving medieval landscapes in northern Europe. It encompasses the ridged and faulted sandstone core of the Kent and Sussex Weald and comprises a mixture of fields, small woodlands and farmsteads with extensive connections to these areas through historic tracks and paths. The majority of the area (78%) is covered by the High Weald AONB with prominent medieval patterns of small pasture fields enclosed by thick hedgerows and shaws (narrow woodlands) remaining fundamental to the character of the landscape.
Low Weald	A broad area of low lying clay which wraps around the northern, western and southern edges of the High Weald. Mostly agricultural land able to support pastoral farming as a result of the heavy clay soils, although lighter soils can be found to the east.

National Character Area Name	Key Characteristics
	The landscape is predominantly covered by densely wooded areas with a large amount of ancient woodland. Approximately 9% of the NCA is situated within the adjacent designated Surrey Hills, Kent Downs and High Weald AONB with 23% of the land categorised as greenbelt.
Wealden Greensand	Around 25% of the area contains extensive belts of woodland, including ancient woods and more recent conifer plantations. Area also features open areas of heath on acidic soils, river valleys and mixed farming with areas of fruit growing. Over half of area covered by South Downs National Park, Kent Downs AONB and Surrey Hills AONB and serves as a significant place of interest for landscape, geology and biodiversity. Underlying geology has shaped the scarp-and-dip slope topography with clear links apparent between vernacular architecture, industry and local geology. The area accommodates a mix of internationally and nationally designated sites related to biodiversity, including 3 SPAs 2 RAMSAR sites and 8 SACs.
Thames Valley	Majority of the landscape is urban with low lying land situated within a wedge shaped area. It widens from Reading, including Slough, Windsor, the Colne Valley and the southwest London Fringes. Hydrological features are the most prominent within the area and include the Thames and its tributaries, the Grand Union Canal and the reservoirs which form the South- West London Waterbodies SPA and Ramsar site. These features are vital for providing water supply services to London and surrounding suburbs whilst also being crucial for wildlife and recreation. Due to the flood risk, flows and water levels in the River Thames are managed upstream of Teddington. Both flood defence and water quality improvement techniques enhance opportunities for biodiversity and recreation throughout the NCA.
Berkshire and Marlborough Downs	A vast area containing arable fields stretching across rolling Chalk hills with scattered settlements. The escarpment provides wide views of the Berkshire and Marlborough Downs with visible landmarks including chalk-cut horse figures, beech clumps and ancient monuments. Avebury stone circle is a popular visitor destination and part of a World Heritage Site, with numerous other Scheduled Monuments and heritage features across the landscape, although Heritage features are at risk from damage by cultivation and animal burrowing.
Salisbury Plain and West Wiltshire Downs	An area dominated by its gently rolling chalk downland which forms part of the sweep of Cretaceous Chalk spanning the Dorset coast and across the Chilterns to north of the wash. The area is sparsely populated with a main focus on agriculture. There are few settlements, leading to a vast, open landscape and a strong sense of remoteness The plain is predominantly covered by its chalk grassland, one of the largest remaining areas of calcareous grassland in north western Europe The area is well protected with SPA, SAC and SSSI designations due to its rich populations of stone curlew, hen harrier and rare bumblebee species
Greater Thames Estuary	A largely remote and tranquil landscape between the North Sea and rising ground inland, consisting of shallow creeks, drowned estuaries, mudflats and broad tracts of tidal salt marsh.

National Character Area Name	Key Characteristics
	Despite proximity to London, the NCA only has a few major settlements and small villages towards the higher ground. It contains some of the most scarcely populated sections of the English coast and is vastly different to the densely populated urban areas towards London. Sea defences protect large areas of reclaimed grazing marsh and its associated ancient fleet and ditch systems, and productive arable farmland. Historic military landmarks are characteristic features of the coastal landscape.
Hampshire Downs	Part of the central southern England belt of chalk, the Hampshire Downs rises 297m in the north-west and is located on the Hampshire-Wiltshire border. A steep scarp to the north delineates the Downs. The area overlooks the Thames Basin the Weald to the east. It is characterised by its elevated, open and rolling landscape covered by large arable fields with low hedgerows on thin chalk soils, scattered woodland blocks and shelterbelts. The Chalk is a large and important aquifer; hence groundwater protection and source inerrability designations cover most of the area. Catchment sensitive farming to control pollution, run-off and soil erosion is a vital activity. The aquifer feeds a number of small streams flowing north and east, although the dominant catchments are those of the rivers Test and Itchen, which flow in straight sided with relatively deeply incised valleys across most of the area. The Itchen is a SAC and the Test a designated SSSI. These rivers, with the water meadows, peat soils, mires and fens of their flood plains, are the most important habitats of the area. The valleys are home to the main settlements, the local road system and important economic activities such as watercress growing and fly fishing.
Isle of Wight	The Isle of Wight is a 380 km^2 island separated from the south coast of England by the Solent. It is comprised of packages of farmed arable coastal plains, pastures and woodland, steep chalk downs, diverse estuarine seascapes and dramatic sea cliffs and stacks, such as the needles. The island is scientifically very important. Almost half of the island falls into an AONB, there are 41 SSSI and 395 SINCs, several dark sky observation areas and Special Protection Areas, home to wetland birds, rare invertebrates and rare plants. The geology of the island is diverse, but it is mainly dominated by Paleogene and Cretaceous sediments, often partly comprised of extremely well preserved dinosaur fossils. There are many important bronze age, iron age, and roman archaeological sites are found on the Isle of Wight The predominately rural island also bears host to popular seaside resorts, post-medieval towns, all attracting many tourists to come and visit and try a wide range of leisure activities.
New Forest	The New Forest NCA, spanning from the lower Hampshire Avon Valley to industrialised Totton and Fawley is predominately comprised up by the New Forest National Park. The area is a lowland plateau, geologically comprised of Paleogenic deposits overlain by Quaternary gravels, and is home to some bronze age (and onwards) archaeological sites. The areas soils are acidic leading to unique European site habitats. The ancient area has been retained largely due to its designation as a William the Conqueror's royal hunting forest, the survival of grazing as part of a pastoral tradition, ancient Forest Law and more recent conservation policies.

National Character Area Name	Key Characteristics
	The centre of the NCA is comprised of open heathland and woodland where wild pigs and wild horses roam free through ancient oak and beech trees. Major urban areas are located at Ringwood, Fordingbridge and Lymington around the edge of the National Park, and large villages within it, notably Beaulieu, Brockenhurst, Burley, Lyndhurst and Sway. In the south-east the ancient Borough town of Christchurch (in Dorset) has spread to the east, over the Avon, extending in a large area of suburban housing along the coast to New Milton.
Penvensey Levels	This predominately rural NCA is a low-lying area is situated in East Sussex between Eastbourne and Bexhill. Over a third of the area is a SSSI and the entire area is a wetland of national and international conservation importance. The south east border is a long coastline of shingle beaches with a huge system of sea defences due to Pevensey Level's high vulnerability to the effects of climate change. The NCA is framed by the steep scarp of the South Downs in the west and the higher ground of the High Weald in the north, with views of the English Channel to the south. The busy Victorian seafront of Eastbourne is the main settlement, attracting over 5 million visitors each year.
Romney Marshes	Romney Marshes are a low reclaimed marshland stretching from large shingle beaches, mudflats and coastal habitats of the English Channel over marshland and arable and grazing land to Hythe, Kent and Pett, Sussex. This have been anthropogenically modified via the use of drainage channels, gravel digging, military activity and tourist amenities. The area is scientifically important, and is a SAC, SPC, SSSI and proposed Ramsar site, as well as being home to some of the UK's rarest species. The NCA acts as a corridor between other important habitats, such as the High Weald and the valleys of Rother and Brede
South Coast Plain	The South Coast Plain is a flat coastal landscape nestled between the dip slope of the South Downs and South Hampshire lowlands and the English Channel, the Solent and Southampton Water. The area is significantly urbanised, and hosts the site of the Portsmouth conurbation and a handful of large seaside towns which heavily rely on protection from the sea. The economies of these areas are intricately linked to marine and recreational activities. A very small percentage of the South Coast Plain is comprised of SSSIs. The area also hosts four SPAs, two SAC and four Ramsar sights. Despite the urban build up, the coastal area feels wide and open. The Isle of Wight can be seen from many places along the South Coast Plain.
The South Downs	The striking open rolling chalk hills and the remote woodland of the South Downs stretches across a spine of chalk from the Hampshire downs on the west and coastal cliffs of East Sussex in the East. The area is only eight percent urbanised, although the rest of the NCA is largely influenced by agriculture and forestry. The South Downs Way National Trail stretches along the back of the northern scarp, and attracts many cyclists, hikers and horse riders.

National Character Area Name	Key Characteristics
	The Cretaceous chalk of the South Downs is very permeable and absorbs much of the rain in the NCA, replenishing the chalk aquifer below. This aquafer is often under stress as it supplies Brighton and surrounding areas. The coast of the South Downs often hosts a cliffy landscape, and a small portion of the NCA is recognised as heritage coast.
South Hampshire Lowlands	The South Hampshire Lowlands NCA stretches from Hampshire and the South Downs to Southampton Water. The large urban area of Southampton and its surrounding areas fills just under a third of the NCA. Otherwise, the area is comprised of farmland, wetland and woodland. Much of this woodland is ancient, a legacy of the Forest of Bere, a Royal Hunting Forest that once spanned area. This woodland can be seen at West Walk near Wickham, Botley Wood at Swanwick and Ampfield Wood near Romsey. The mudflat and salt marsh wetlands of the area are home to breeding and overwintering waterfowl and waders. Three Habitats' sites cover parts of the area. The delicate and unique river areas of this NCA are home to otters. The geology of the South Hampshire Lowlands is mainly consisting of open marine, estuarine and freshwater Tertiary deposits.
Thames Basin Heaths	The Thames Basin Heaths covers westwards from Weybridge, Surrey to the countryside around Newbury in Berkshire. The London greenbelt incorporates countryside around Chobham and the River Wey and River Mole. The NCA housing the large urban conurbations of Bracknell and Camberley and the large M25 and M3 road network. Away from London, the settlement pattern is a mix of dispersed hamlets, farmsteads and houses interspersed with villages, and as well as parkland, ancient woodland and semi-natural grassland. A quarter of the NCA is woodland, with the majority planted on former heathland, commonly comprised of rhododendron and conifers. Common land is found across the NCA on deposits of Tertiary sands and gravels, leading to only rough pasture. Other land uses include military bases such as Aldershot, and plantations. Wilder areas are formed by wet and dry heathland and are of international importance and are protected by SSSI and SAC statuses. These areas provide habitats for nightjars, Dartford warblers and woodlarks. Due to their proximity with urban settlements these areas often suffer from fly tipping and arson.
Blackmoor Vale and the Vale of Wardour	To the south of this NCA there is Upper Greensand Terraces and a wide expanse lowland clay vale. The NCA expands to the north to the edge of Salisbury Plain and West Wiltshire Down NCA. The fertile area of the terraces is the site of several stately homes and their estates of parks and woodland. Blackmore vale has many veteran hedgerow trees and hedgefields which often become waterlogged due to the pattern of overlapping rivers and streams. Urban areas comprised of large towns (e.g. Sturminster Newton and Gillingham) making the area 1% urbanised, many small towns, villages and hamlets, some of which are medieval. Disused quarries show the Jurassic and Cretaceous geology of the area.
Dorset Downs and	Spans within the counties of Dorset, Wiltshire and Hampshire.

National Character Area Name	Key Characteristics
Cranbourne Chase	Heavily agricultural NCA due to large open arable and pasture fields. The NCA is very rural with a low population density. The largest towns are Dorchester and Blandford Forum. The NCA is also blanketed by pockets of woodland, with the entire area overlaying Cretaceous chalk. The area is archeologically important and shows evidence of Mesolithic activity (8000 years ago). 15km long transect of the South West Coast Path National Trail runs through this NCA.
Dorset Heaths	This NCA overlaps the towns of Poole, Bournemouth and Christchurch. The area is scientifically important and contains a number of SPAs due to the presence of rare reptiles, insects, birds and heathland. Major land uses include agriculture, military training and open cast mineral working. Tourism is a major industry within the area, attracting visitors to archetypical sandy beaches.
Inner London	The Inner London NCA lies at the centre of the Thames Basin and is characterised by a series of flood plain terraces. Rare open spaces, such as reservoirs and wetland areas (e.g. the Lea Valley) within the NCA provide space for leisure activities in an otherwise urban area. The area bares a long and rich cultural history which has carried forward into the present day and is now a major hub for international business and tourism. Due to the heavy urbanisation, the area is heavily dependent on transport schemes, such as a complex subterranean tunnel system, and ecosystem services such as flood alleviation.

Environmental Baseline Figures

See separate PDF file:

C1 European Designated Sites
C2 National Designated Sites
C3 Recreation
C4 Aquifer & Geology
C5 Surface Water Features
C6 Resource Availability
C7 Agricultural
C8 Air Quality
C9 Historic Environment
C10 Landscape