

Annex 12 SEA Appendices A to C

Appendix A

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

Southern Water issued its Strategic Environmental Assessment (SEA) Scoping Report for its Drought Plan 2019 for public consultation from 14 November to 16 December 2016.

Comments on the SEA Scoping Report were received from the following organisations:

- Natural England
- Environment Agency
- Historic England
- Hampshire and Isle of Wight Wildlife Trust
- Sussex Wildlife Trust
- WWF

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.

Table A1 Draft Drought Plan: SEA Scoping Report – responses to comments received

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
1	Natural England	<p>General Boundary of the assessment area. This SEA scoping report has identified relevant policies, plans and projects, and baseline information for Southern Water's supply area. Natural England welcomes the consideration in the SEA boundary of the zone of hydrological influence for all supply side options even if this is outside the supply area. If hydrological influence or construction impacts occur beyond the boundary of Southern Water's supply area, then any environmental receptors in that area should also be identified. In particular this should include any Sites of Special Scientific Interest (SSSIs), European sites or priority habitats, along with designated landscapes and National Character Areas.</p>	Noted and confirm that any effects that may arise outside of the Southern Water supply area boundary will be considered and assessed.
2	Natural England	<p>General Designated sites The SEA Environmental Report should assess the potential for the proposal to affect nationally and internationally important designated sites, including Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar sites and Sites of Special Scientific Interest (SSSIs). SSSI citations, site conservation objectives, favourable condition tables (FCT) and condition assessments can be viewed online on the Designated Sites View database.</p>	Comment noted and confirm that if the SEA (and associated Habitats Regulations Assessment) identifies potential adverse effects on designated sites these will be explored further in specific Environmental Assessment Reports that will, in turn, inform the SEA
3	Natural England	<p>General Habitats Regulations Assessment (HRA) European sites (e.g. designated SACs and SPAs) fall within the scope of the Conservation of Habitats and Species Regulations 2010 (as amended). In addition paragraph 118 of the National Planning Policy Framework requires that potential SPAs, possible SACs, listed or proposed Ramsar sites, and any site identified as being necessary to</p>	<p>Potential SPAs, possible SACs, listed or proposed Ramsar sites have been added to the Baseline Section and the Appendix C Figure C1.</p> <p>Consultation on the parallel Habitats Regulations Assessment will involve Natural England from the very outset before the start of</p>

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		<p>compensate for adverse impacts on classified, potential or possible SPAs, SACs and Ramsar sites be treated in the same way as classified sites.</p> <p>Under Regulation 61 of the Conservation of Habitats and Species Regulations 2010 an appropriate assessment needs to be undertaken in respect of any plan or project which is (a) likely to have a significant effect on a European site (either alone or in combination with other plans or projects) and (b) not directly connected with or necessary to the management of the site.</p> <p>Should a likely significant effect on a European / Internationally designated site be identified or be uncertain, the competent authority (in this case Southern Water) will need to prepare an Appropriate Assessment, in addition to consideration of impacts through the SEA process. Natural England notes that Southern Water is undertaking a Habitats Regulations Assessment (HRA) of relevant drought plan options and will consult Natural England on the HRA separately to the SEA process. The statutory requirement to consult Natural England at the appropriate assessment stage should be noted in section 1.3.3, because as written it appears that Natural England would not be consulted until Stage 4 of the process.</p>	<p>the formal Stage 1 screening process; this will be clarified in the SEA Environmental Report.</p>
4	Natural England	<p>General New licences for previously exempt abstractions (Water Act 2003) An emerging issue to be resolved in the SEA (for nature conservation sites) is the interaction of drought plan options with new abstraction licences which will be required as a result of the implementation of the Water Act 2003. Many existing abstractions, including on managed wetlands, are currently exempt from requiring a licence. Such exemptions are due to be removed early next Spring. It will be important</p>	<p>It is noted that some existing abstractions for conservation purposes are exempt from requiring an abstraction licence but that this will change in the near future under regulations being drafted in accordance with provisions in the Water Act 2003. This includes abstractions for managed wetlands. The potential impacts of the implementation of drought measures on all abstractions (whether licensed or unlicensed) will form part of the</p>

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		<p>to understand not only how each drought plan option will directly affect nationally and internationally important designated sites, but also if the drought scheme's use under a Drought Order will have any implications for access of water for conservation management at such sites. Managed wetlands (including National Nature Reserves and other designated sites) will require an abstraction licence for their primary offtake from water courses. Public water supply licences, including drought options, take precedence in drought. It should be considered whether a Drought Permit could theoretically interfere with the ability to manage sites for nature conservation.</p>	<p>environmental assessment and consideration given as to the consequential effects of any identified impacts. Where impacts are identified in relation to abstraction for nature conservation, we will engage with the abstractor concerned to consider the effects and any mitigation measures that could be implemented.</p> <p>A detailed assessment will be carried in specific Environmental Assessment Reports for each Drought Permit/order included in the Drought Plan, the findings of which will directly inform the SEA.</p>
5	Natural England	<p>General Regionally and locally important sites Southern Water will need to consider impacts of the Drought Plan on local wildlife and geological sites. Local Sites are identified by the local wildlife trust, geo-conservation group or a local forum established for the purposes of identifying and selecting local sites. They are of county importance for wildlife or geo-diversity.</p> <p>Due to the number of drought options and the area covered by the drought plan, along with the fact that only a selection of options will be required during a drought situation, it may not be practical to assess impacts on these sites within the SEA. However, sufficient information should be available through the SEA or the Environmental Assessment Reports for each option to make meaningful and strategic decisions about the use of drought options. The SEA should explain where any gaps in baseline information are, and how the water company will fill these gaps in sufficient time, should a Drought Permit be required.</p>	<p>Local Nature Reserves (LNRs) have been included in the environmental baseline section and will be considered as part of the SEA, informed by specific Environmental Assessment Reports for each Drought Order/permit option included in the Drought Plan.</p> <p>The monitoring section of the SEA Environmental Report will discuss any baseline data gaps and summarise the proposed baseline monitoring programme that will be set out in detail in the Environmental Monitoring Plan that forms part of the Drought Plan.</p>

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
6	Natural England	<p>General Protected Species</p> <p>Protected Species are those protected by the Wildlife and Countryside Act 1981 (as amended) and by the Conservation of Habitats and Species Regulations 2010 (as amended). Southern Water will need to consider the impacts of the drought plan on protected species (including, for example, otter, white-clawed crayfish, little whirlpool ram's horn snail, great crested newts, reptiles, birds, water voles, badgers and bats). Natural England does not hold comprehensive information regarding the locations of species protected by law, but advises on the procedures and legislation relevant to such species. Records of protected species should be sought from appropriate local biological record centres, nature conservation organisations, groups and individuals; and consideration should be given to the wider context of the site for example in terms of habitat linkages and protected species populations in the wider area, to assist in the impact assessment. Consideration should be given to whether sites have been used as receptor sites for protected species from other developments.</p> <p>As with regionally and locally important sites, it may not be practical to assess impacts on protected species within the SEA. However, sufficient information should be available through the SEA or the option specific Environmental Assessment Reports to make meaningful and strategic decisions about the use of drought options.</p> <p>The SEA Environmental Report should explain where any gaps in baseline information are, and how the water company will fill these gaps in sufficient time, should a Drought Permit be required.</p>	<p>Protected species (and habitats) were discussed at a strategic level in the Scoping Report and will be considered as part of the SEA, informed by the specific Environmental Assessment Reports for each Drought Order/permit included in the Drought Plan.</p> <p>Text will be included in the Environmental Report as to how the SEA can be used to inform the decision making during times of drought. The monitoring requirements are specified in the EARs and include baseline monitoring, pre-drought monitoring, in drought monitoring and post-drought monitoring. It is noted that the monitoring needs to be at particular times of year and carried out by suitably qualified and where necessary, licensed, surveyors.</p> <p>The monitoring section of the SEA Environmental Report will discuss any baseline data gaps and summarise the proposed baseline monitoring programme that will be set out in detail in the Environmental Monitoring Plan that forms part of the Drought Plan. As noted, the monitoring needs to be at particular times of year and carried out by suitably qualified and where necessary, licensed, surveyors. These requirements will also be set out in the Environmental Monitoring Plan.</p>

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		<p>The conservation of species protected by law is explained in Part IV and Annex A of Government Circular 06/2005 Biodiversity and Geological Conservation: Statutory Obligations and their Impact within the Planning System. If a potential risk to protected species is identified for any drought option, then the area likely to be affected by the drought option should be thoroughly surveyed by competent ecologists at appropriate times of year for relevant species and the survey results, impact assessments and appropriate accompanying mitigation strategies included as part of the Environmental Assessment Report.</p> <p>In order to provide this information there may be a requirement for a survey at a particular time of year. Surveys should always be carried out in optimal survey time periods and to current guidance by suitably qualified and where necessary, licensed, consultants. Natural England has adopted standing advice for protected species which includes links to guidance on survey and mitigation.</p>	
7	Natural England	<p>General Rights of way, access land, coastal access and National Trails</p> <p>The SEA Environmental Report should consider potential impacts of the drought plan options on access land, public open land, rights of way and coastal access routes. Consideration should also be given to the potential impacts on National Trails (e.g. the South Downs Way Trail and the North Downs Way). The National Trails website www.nationaltrail.co.uk provides information including contact details for the National Trail Officer. Appropriate mitigation measures should be incorporated for any adverse impacts. We also recommend reference to the relevant Right of Way Improvement Plans (ROWIP) to identify public rights of way that should be maintained or enhanced.</p>	<p>Public rights of way including National Trails are addressed in the SEA objectives and key questions in Table 4-1 SEA Objectives and Assessment approach. Reference is made to Right of Way Improvement Plans in Appendix B Plans Policies and Programmes Review. Where a Drought Order/permit or other drought management option may affect recreational assets and public rights of way, these will be identified and assessed.</p>

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
8	Natural England	<p>General</p> <p>Landscape and visual impacts</p> <p>Southern Water will need to consider the potential impacts of the drought plan on local landscape character. The SEA and Environmental Assessment Reports should include sufficient baseline information to make meaningful and strategic decisions about the use of drought options. For many drought options, it may be straightforward to screen out any potential landscape and visual impacts. The SEA should explain where any gaps in baseline information are, and how the water company will fill these gaps in sufficient time, should a Drought Permit/order be required.</p> <p>Landscape assessment methodologies should be used to assess the potential impacts of the drought plan on local landscape character. We encourage the use of Landscape Character Assessment (LCA), based on the good practice guidelines produced jointly by the Landscape Institute and Institute of Environmental Assessment in 2013. LCA provides a sound basis for guiding, informing and understanding the ability of any location to accommodate change and to make positive proposals for conserving, enhancing or regenerating character, as detailed proposals are developed.</p> <p>Natural England supports the publication Guidelines for Landscape and Visual Impact Assessment, produced by the Landscape Institute and the Institute of Environmental Assessment and Management in 2013 (3rd edition). The methodology set out is almost universally used for landscape and visual impact assessment.</p> <p>Throughout the SEA scoping document, welcome reference is made to National Character Areas (NCAs) which can be</p>	<p>Potential effects of drought plan measures on landscape and visual amenity will be considered in the SEA under the landscape and visual amenity topic objectives, as set out in the Scoping Report.</p> <p>This includes potential impacts on AONBs, National Parks and National Character Areas. Impacts will be assessed in specific Environmental Assessment Reports for each Drought Order/permit option included in the Drought Plan and these will inform the SEA.</p>

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
		found on our website. Information on Landscape Character Assessment is also available on our website.	
9	Natural England	<p>General Air quality</p> <p>Information on air pollution impacts and the sensitivity of different habitats/designated sites can be found on the Air Pollution Information System (www.apis.ac.uk). Further information on air pollution modelling and assessment can be found on the Environment Agency website.</p>	Reference to the Air Pollution Information System is included in the environmental baseline in Appendix C. Potential effects on air quality will be reported against the SEA air and climate topic objectives, as well as the human health topic objective relating to air quality, as appropriate.
10	Natural England	<p>General Contacts for local records</p> <p>Natural England does not hold local information on local sites, local landscape character and local or national biodiversity priority habitats and species. We recommend that you seek further information from the appropriate bodies (which may include the local records centre, the local wildlife trust, local geo-conservation group or other recording society and a local landscape characterisation document).</p>	This has been discussed with Natural England and contact has been made as appropriate with the local record centres.
11	Natural England	<p>General Cumulative and in-combination assessment</p> <p>The scoping report recognises the need to consider cumulative and in-combination effects of options, both within the plan and with other plans and programmes (1.3.1). In particular, Natural England would like to highlight the importance of including other water companies' water resource and drought plan options in this assessment, including any bulk water transfers which are being considered. It may be helpful to take account of the work of Water Resources South East on cumulative and in combination assessment.</p> <p>The SEA Environmental Report should include an impact assessment to identify, describe and evaluate the effects</p>	<p>The approach to carrying out the cumulative effects assessment is described in Section 6 of the SEA Scoping Report. The approach includes consideration of cumulative impacts with the latest available Water Resource Management Plans and drought plans of other water companies.</p> <p>The cumulative assessment will also consider other relevant plans and projects, particularly large-scale projects or plans reflecting the strategic level of assessment for SEA.</p>

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		<p>that are likely to result from the project in combination with any other large or locally-significant projects and activities that are being, have been or will be carried out. The following types of projects should be included in such an assessment (subject to available information):</p> <ol style="list-style-type: none"> existing completed projects; approved but uncompleted projects; ongoing activities; plans or projects for which an application has been made and which are under consideration by the consenting authorities; and plans and projects which are reasonably foreseeable, i.e. projects for which an application has not yet been submitted, but which are likely to progress before completion of the drought plan period and for which sufficient information is available to assess the likelihood of cumulative and in-combination effects. 	
12	Natural England	<p>Biodiversity, flora and fauna Policies, plans and programmes (Table 2-1)</p> <p>The following policies, plans and programmes should also be included in this section:</p> <p>International:</p> <ul style="list-style-type: none"> Regulation (EU) No 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 Regulation (EC) No 1100/2007 of 18 September 2007 on establishing measures for the recovery of the stock of European eel Directive 2004/35/CE of the European Parliament and of the Council of 21 April 2004 on the environmental liability with regard to the prevention and remedying of environmental damage. <p>National:</p> <ul style="list-style-type: none"> Natural England's standing advice on protected species. 	<p>These policies, plans and programmes will be included in the SEA Environmental Report and considered in the assessment of potential effects of the Drought Plan.</p>

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		Regional/local: National Character Area (NCA) profiles as these also concern biodiversity as well as landscape;	
13	Natural England	<p>Biodiversity, flora and fauna Key messages (Tables 2-1)</p> <p>The following should also be included in the key messages:</p> <ul style="list-style-type: none"> • Reference to priority habitats and species (NERC act S41 for England) should be added to the first sentence. • The third sentence should be modified to read “To achieve favourable condition for priority habitats and species in particular designated sites”. 	Text will be included in the Environmental Report to reflect these suggested amendments.
14	Natural England	<p>Biodiversity, flora and fauna Review of baseline (Section 3.2.1 and Appendix C.1)</p> <p>This section should include the current baseline in terms of the condition of SSSIs and Natura 2000 sites (e.g. percentage in favourable or favourable/recovering condition). Reference to the baseline threats and pressures are not well covered in this section; mention of the damage to the water dependant habitats and species by non-native invasive species would be helpful for example. The high population and development pressure in the Southern Water Supply area is not referenced as a pressure in the baseline of the biodiversity. The high levels of anthropogenic pressure are of significant relevance to both the need for water in drought and the baseline condition of the environment and therefore its ability to withstand additional pressures during drought.</p> <p>The WFD ecological classification summary is welcome in the biodiversity topic but the pressures effecting ecological classification are not well summarised. Note that the Medway Catchment is in the Thames River Basin District and therefore the Thames River Basin Management Plan should be referred to in all the relevant baseline sections.</p>	Comments noted. The environmental baseline information in the SEA Environmental Report will reflect these points.

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		<p>The reference to allowing wildlife to adapt to a changing climate in the future baseline section is particularly welcome.</p>	
15	Natural England	<p>Biodiversity, flora and fauna Designated sites (3.2.1 and Appendix C.1) The numbers of designated sites listed in section 3.2.1 appears largely correct but figure C1 appears somewhat confused. In figure C1 the marine and coastal European sites are either missing (e.g. Solent Maritime Special Area of Conservation) or are impossible to see as they are overlaid by the MCZ (e.g. Thames Estuary and Marshes SPA and Ramsar site). Some of the missing sites are very large (e.g. South White Maritime SAC, Margate and Longsands SAC and outer Thames Estuary SPA). Freshwater flows are important to many of the missing coastal sites (e.g. Chichester and Langstone Harbour SPA and Ramsar site).</p> <p>It might be helpful to present a large (A3) map and have a separate map for ancient woodland leaving only the designations on the main map. I note that the list of sites does include the missing coastal SACs and SPAs so this mapping should not influence the Habitats Regulations Assessment HRA).</p> <p>There is no list of Ramsar Sites in Appendix C – this should be corrected for the final report and will be needed for the HRA. The geographical location and feature interest of the Ramsar sites is often significantly different to the SPAs and is always wetland focused so can be of even greater direct relevance to the drought plan assessment than the SPA alone.</p> <p>The following corrections should be made to Table C1</p> <ul style="list-style-type: none"> • Dungeness to Pett Level SPA – has been replaced and 	<p>Figure C1 have been updated to show the coastal and marine sites more clearly and missing sites are now shown. Ancient woodland and the LNR and NNRs have also been added to a separate figure to make the designated sites clearer.</p> <p>A list of Ramsar Sites has been added to Appendix C. The SPA listing has been updated to include Dungeness, Romney Marsh and Rye Bay.</p> <p>These amendments will be included in the SEA Environmental Report.</p> <p>The allied HRA screening report includes all relevant designated sites and has been discussed with Natural England.</p>

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		<p>extended and is now called Dungeness, Romney Marsh and Rye Bay SPA which is also a new (and large) Ramsar site with extensive wetland features.</p>	
16	Natural England	<p>Biodiversity, flora and fauna Priority habitats and species</p> <p>The list of priority habitats should also highlight the importance of coastal and transitional sites, many of which rely on freshwater flows for part of the diversity. It would be good to include a link to the maps of priority lake and river habitat published by Natural England. The headwaters in the south downs are significant priority features in the Southern Water supply area.</p> <p>The list of priority species does not contain all the relevant water related species for the Southern Water supply area and contains ones that have only a marginal or very limited presence in their supply area (Loddon Lilly is more related to Thames Water supply area for example). Several S41 species (e.g. fen raft spider, sharp-leaved pondweed, cutgrass) have strongholds in Southern Waters supply area. Species such as Little whirlpool ram's horn snail (<i>Anisus vorticulus</i>) have more than 2/3rd of their UK population in Southern Waters supply area. Other S41 species which are also protected species that feature widely across the supply area include great crested newts. There is no mention of protected species in the environmental baseline. This study area is particularly rich in protected species associated with the high density of ancient woodland and mosaic habitats such as great crested newts, a range of bat species and dormice. The list of S41 habitats and species to be considered should be improved to better reflect the species most relevant to the supply area.</p>	<p>The baseline data have been updated to reflect these comments and the updated text will be provided in the SEA Environmental Report.</p> <p>The list of NERC species was meant to be illustrative of the diversity of priority species and habitats in the area under consideration rather than an exhaustive list - this has been clarified in the text: "Important water-related NERC species that have been identified from baseline data in the area are listed below (this list is not exhaustive)". The list has also been revised to include those species and habitats most relevant to the study area.</p>

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
17	Natural England	<p>Biodiversity, flora and fauna Key issues (Section 3.2.3, Table 3-2) The issues are generally well covered in section 3.2.3 but could be amended to reflect the need to recognise some of the habitats and species are already stressed due to the extensive anthropogenic pressures of the high and rapidly growing population.</p> <p>The wording of the first issues in table 3-2 should be amended to include reference to priority habitats and species (NERC act S41 for England). Reference to conserving and enhancing protected species should also be made in this table which could be added to the bullet point on coherent ecological networks.</p> <p>The Baseline review in table 3-2 should be amended to include the need to support the achievement of favourable condition of designated sites and priority habitats and species.</p>	<p>The key issues section has been updated to include reference to priority habitats and species and the achievement of favourable condition of designated sites and priority habitats and species. The revised text will be included in the SEA Environmental Report.</p>
18	Natural England	<p>Biodiversity, flora and fauna SEA objectives and key questions (Section 4, Table 4-1) The baseline key issues in table 4-1 and the last bullet on page 49 should be extended to include reference to the condition of the environmental baseline elements where this is known (e.g. for designated sites). The SEA objectives and questions in this table are appropriate.</p>	<p>Text has been amended to include reference to the condition of the baseline elements (where known) or designated sites. Revised text will be included in the SEA Environmental Report.</p>
19	Natural England	<p>Population and human health Policies, plans and programmes (Table 2.1) The following policies, plans and programmes should also be included in the regional/local list:</p> <ul style="list-style-type: none"> • Rights of Way Improvement Plans (ROWIPs); • Local Authority green infrastructure strategies, 	<p>Rights of Way Improvement Plans added to the Policies, Plans and Programmes review in Appendix B and Table 2-1. Generic reference to green infrastructure included as there are variations in coverage across the area. The revised text will be included in the SEA Environmental Report.</p>

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20	Natural England	<p>Population and human health Key messages (Tables 2-1) We advise that consideration of purely economic impacts is not appropriate for an SEA, and such impacts should be assessed elsewhere in the water company's business planning documents. However, it is appropriate to include an assessment of health and safety-related issues, including the supply of a secure water supply to the population. Southern Water should take care to separate out these issues and not give undue weight to purely economic impacts.</p> <p>In light of this, Natural England suggests that the key message "Promotion of a sustainable economy supplied by universal access to essential utility and infrastructure services" should be removed. Access for all to a secure water supply is already covered in another key message, which relates to human health.</p>	<p>The focus of this objective is on a <u>sustainable economy</u>, i.e. one that reflects the need to fully consider environmental and social issues in developing reliable and resilient supplies of water, rather than a focus on economic impacts. We propose to modify the wording of the objective to: "promote sustainable socio-economic development through provision of access to a resilient, high quality, sustainable and affordable supply of water".</p>
21	Natural England	<p>Population and human health SEA objectives and key questions (Table 4-1) The fifth key question, "Will it protect or enhance opportunities for recreation and tourist activities, including navigation?", could also refer to Rights of Way and National Trails.</p>	<p>Added Rights of Way and National Trails to the key question. This will be reflected in the assessments being carried out and in the SEA Environmental Report.</p>
22	Natural England	<p>Water The following policies, plans and programmes should also be included in this section: Regional/local:</p> <ul style="list-style-type: none"> • Any documents or plans relating to the Water Resources South East (WRSE) group, which might be relevant to the SEA Environmental Report. • Any relevant local authority water management plans or strategy (e.g. integrated water management strategy of PUSH authorities in Hampshire). 	<p>Water Resources in the South East (WRSE) Group (forthcoming) regional water resources strategy added to PPP review in Appendix B and to be reviewed if it becomes available in time for the draft Drought Plan.</p> <p>Local authority water management plans are not generally focused at a strategic level and/or relevance to drought planning. We will look again at the Hampshire plan referred to and any</p>

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			other similar plans and consider their relevance in respect of the Drought Plan SEA.
23	Natural England	<p>Water Key messages (Tables 2-1) The following should also be included in the key messages:</p> <ul style="list-style-type: none"> • The second sentence should be changed to include reference to maintenance and improvement of water resource as well as water quality. • The requirement to meet protected area targets related to water quality and flow in the Water Framework Directive should be added. 	<p>Amended the second sentence to include water resources.</p> <p>Protected area targets for flow and water quality have been added as a key message in the Policies, Plans and Programmes and added as a key question to Objective 4.3.</p> <p>The revised text will be included in the SEA Environmental Report.</p>
24	Natural England	<p>Water Review of baseline (Section 3.5) The Medway catchment is in the Thames River Basin District not in the South East River Basin District. The baseline information should be amended to include reference to the condition of the water bodies. Note that in addition to those reservoirs mentioned as in the supply area but owned by another company Arlington reservoir should be added.</p> <p>Note that the chalk groundwater is also very important in Hampshire as well as the other counties mentioned. It would seem sensible to provide summaries where available for the “sustainable catchment” work being undertaken by the Environment Agency. This will give an overview of the baseline position of water resources for different catchments.</p> <p>The need to meet protected area targets for flow and water quality and baseline percentage of protected areas that are currently meeting these standards should be referred to in this section but also in table 3-2.</p>	<p>The baseline text has been amended to reflect these comments and will be included in the Environmental Report.</p> <p>We will include a reference to the ongoing Environment Agency Sustainable Catchments work, where relevant. Information from this work will be referenced in relation to specific Environmental Assessment Reports for Drought Permits/order options and in the Water Framework Directive assessment report where applicable.</p> <p>Inclusion of protected area targets for flow and water quality has been added as a key message in the Policies, Plans and Programmes and added as a key question to Objective 4.3. The revised text will be included in the SEA Environmental Report.</p>

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25	Natural England	<p>Water SEA objectives and key questions (Section 4, Table 4-1) We suggest the inclusion of an additional key question on water: “Will it promote achievement of protected area targets on flow or water quality “</p>	<p>Key question added to Objective 4.3 relating to ensuring appropriate and sustainable management of abstractions to maintain water supplies whilst protecting ecosystem functions and services that rely on water resources. The revised text will be included in the SEA Environmental Report.</p>
26	Natural England	<p>Soil, geology and land use Key messages (Tables 2-1) • The first sentence should be expanded to include reference to conservation local geological sites such as Regional Important Geological Sites (RIGS).</p>	<p>Text updated to include this reference.</p>
27	Natural England	<p>Soil, geology and land use Review of baseline (Section 3.5) Reference to geological SSSIs in this section is welcome.</p>	<p>Noted.</p>
28	Natural England	<p>Soil, geology and land use Key issues (3.6.3) The first sentence should be expanded to include important local geological sites.</p>	<p>Text updated to include this reference.</p>
29	Natural England	<p>Water SEA objectives and key questions (Table 4-1) The SEA objective could be expanded to reference the need to prevent soil erosion (which can be greatly exacerbated when normally wet soils are dried).</p>	<p>A key question has been added to Objective 5.1 that relates to soil erosion. The revised text will be included in the SEA Environmental Report.</p>
30	Natural England	<p>Air and climate Policies, plans and programmes (Table 2-1) Also relevant to regional/local programmes is the Air Pollution Information System (www.apis.ac.uk). This provides information on air pollution impacts and the sensitivity of different habitats/designated sites.</p> <p>The following policies, plans and programmes should also be included in this section:</p>	<p>The Air Pollution Information System was referred to in the baseline section and reference was made to the Paris Agreement in the Policies, Plans and Programmes review.</p>

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
		International: The Paris agreement 2015 entered into force in October 2016.	
31	Natural England	<p>Air and climate Key issues (3.7.3)</p> <p>Reference to need to enable wildlife to adapt to climate change is particularly welcome but should be included in the summary in table 3-2.</p>	This has been added to the summary table. The revised text will be included in the SEA Environmental Report.
32	Natural England	<p>Landscape and visual amenity Policies, plans and programmes (Table 2.1)</p> <p>The following policies, plans and programmes should also be included in the regional/local list:</p> <ul style="list-style-type: none"> • Landscape Character Assessments (where available). 	The National Character Areas have been included.
33	Natural England	<p>Landscape and visual amenity Review of baseline</p> <p>Environmental Baseline - Supporting information (Appendix C, Table C.8)</p> <p>This table lists the AONBs with key characteristics descriptions. The two National Parks (which are referred to in Section 3.9.1 of main document) should be added to this table and their characteristics listed here.</p> <p>Where available the summary of the condition of each landscape (whether diverging from character) and the baseline level of pressure they are subject to should be added to this table. Reference to the heritage coasts is particularly welcome. The condition of these landscapes should also be reflected in table 3-2. (Appendix C, Table C15)</p> <p>This lists the character areas covered by the supply study area. It would be helpful to note the particular pressures the main NCAs are subject to.</p>	The characteristics of National Parks in the study area have been added to the Baseline Appendix C, along with noting the particular pressures on National Character Areas.
34	Natural England	<p>Proposed framework for assessment</p> <p>Natural England is happy with the proposed methods for assessment as set out in the SEA scoping report with one</p>	The SEA Environmental Report will make it clear what mitigation measures have been assumed for each drought management option

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		exception. Though we agree that the final version of the assessment tables should show the options assuming mitigation and best practice, it would greatly help the transparency of the assessment process if a table proceeding this that shows the impacts of the options without mitigation.	and which have therefore informed the assessment of each option post- mitigation.
35	Natural England	Table 4-2 The questions within the table should be amended to reflect amendments recommended in any of the sections above.	Noted. Amendments made as set out above.
36	Natural England	Next steps The iterative process described is welcome. Task B2 – Developing strategic alternatives: The scoping report says that “Where significant negative impacts are identified, it may be necessary to identify other alternative options, both demand and supply side”. Natural England advises that where significant negative impacts are identified, alternative options should always be considered.	Noted. The SEA process will ensure that alternative options are considered and this will be explained in the SEA Environmental Report as well as in the Draft Drought Plan.
37	Sussex Wildlife Trust	The Sussex Wildlife Trust would like to see Local Wildlife Sites included in the environmental baseline for Biodiversity, Flora and Fauna (section 3.2). Whilst these sites are not statutory consideration, they do make up a vital element of the wider ecological network in the UK. Potential impacts on these sites should be considered. In Sussex, the location of these sites can be obtained from the Sussex Biodiversity Record Centre. For other counties you will need to approach the relevant local environmental record centre.	The risk of a local wildlife site being significantly affected by the implementation of any Drought Permit / order option will be considered, where relevant, in the specific Environmental Assessment Reports which, in turn, inform the SEA.

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
38	Hampshire and Isle of Wight Wildlife Trust	<p><i>Q2. Do you agree with the SEA spatial area under consideration (see Figure 1-2)? If you disagree, please explain why and what changes you consider are required.</i></p> <p>The geographical area under consideration for the SEA covers all of Southern Water's WRZs, the river and/or groundwater catchments of those water sources, and also the locations and sources of bulk water supply imports that serve these WRZs but which lie outside their boundaries. We agree that these areas should all be included, but also query whether potentially-affected transitional waters should also be included within the scope. These waters are fed by the rivers and groundwaters from which abstraction takes place, and so could equally be impacted by measures implemented during a drought. These should include for example the Solent, and the harbours of East Hampshire, particularly in light of the nature conservation designations that they hold.</p>	<p>Transitional water bodies and some coastal water bodies have been considered within the SEA Scoping Report. They are discussed in the Water section of the Environmental Baseline and are shown on Figure C3 Surface Water Features. The spatial area under consideration Figure 1.2 has been updated to reflect this more clearly.</p>
39	Hampshire and Isle of Wight Wildlife Trust	<p><i>Q3. Do you agree with the approach to assessing the environmental baseline (see Section 3)? If you disagree, please explain why and what changes you consider are required.</i></p> <p>We broadly agree with the issues and data sources recognised.</p> <p>We note that the environmental baseline described in relation to Water remarks that "the WFD applies to estuaries, groundwater and coastal waters out to one nautical mile", yet the geographical area under consideration (Q2) excludes these transitional and coastal waters. This statement provides further justification for their inclusion. In addition, these areas are included in the proposed new SPA covering the Dorset to Sussex Coast, which should also feature in the environmental baseline.</p>	<p>See response to comment Ref 38.</p>

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
40	Hampshire and Isle of Wight Wildlife Trust	<p>Q4. Are the plans and programmes that have been reviewed appropriate (see Section 2)? If not, please explain why.</p> <p>Those already included appear relevant and appropriate.</p>	Noted
41	Hampshire and Isle of Wight Wildlife Trust	<p>Q5. Are you aware of other plans or programmes that should be considered (see Section 2)? If so, please provide references.</p> <p>In relation to Biodiversity, flora and fauna: The importance of the Catchment Based Approach and the potential role of catchment partnerships in delivering improvements across catchments should be incorporated. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/204231/pb13934-water-environment-catchment-based-approach.pdf</p> <p>The Priority Species listed do not appear to be exhaustive, and should include for example Southern Damselfly. There are likely to be other water-dependent species amongst the 943 'Species of Principal Importance' listed under Section 41 of the NERC Act.</p> <p>In relation to Water: Relevant outputs from the Water Resources in the South East initiative should be considered if not already reviewed: http://www.wrse.org.uk/public-documents/</p>	<p>The Defra (2013) Catchment Based Approach: Improving the quality of our water environment document has been added to the Policy, Plans and programmes.</p> <p>The list of NERC species was not intended to be an exhaustive list and was designed to convey the diversity of the designated species in the study area. This this has been clarified in the updated text: "Important water-related NERC species that have been identified from baseline data in the area are listed below (this list is not exhaustive)". The list has also been updated to better reflect those species most relevant to the study area.</p> <p>Water Resources in the South East (WRSE) Group (forthcoming) regional water resources strategy has been added in Appendix C and this will be reviewed if it becomes available in time for the draft Drought Plan.</p>
42	Hampshire and Isle of Wight Wildlife Trust	<p>Q7. Taking account of the SEA Regulations and associated guidance, are the environmental issues identified for Southern Water Drought Plan appropriate (see Section 3)? If not, please explain why and what changes you consider are required.</p> <p>We note that only those drought management measures, plans, projects and programmes that are likely to be effective in the period 2018 to 2022 will be considered in the SEA; this approach appears sensible.</p>	Noted

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43	Hampshire and Isle of Wight Wildlife Trust	<p>Q8. Taking account of the SEA Regulations and associated guidance, do the environmental objectives encompass all the necessary issues (see Section 4)? If not, please explain why and what changes you consider are required.</p> <p>Objective 1.1 – add in ‘the restoration of natural ecosystem function.</p> <p>Objective 2.2 – amend to ‘sustainable’ recreation, tourism, etc. - this aim could otherwise see unsustainable activities supported & promoted.</p> <p>Objective 3.1 – after ‘resources’, add in ‘to include the use of natural rather than built solutions where appropriate’.</p> <p>Objective 4.4 (new) – To promote a catchment based approach to the management of the freshwater environmental and work with local stakeholders to deliver catchment-based solutions to water quality and quantity impacts</p> <p>Objective 6.2 – add in ‘energy consumption and’ before GHG emissions.</p>	<p>We have added in: ‘sustainable’ recreation, tourism to Objective 2.2 ‘energy consumption and’ before GHG emissions to Objective 6.2.</p> <p>The following key questions have been added against the objectives:</p> <p>1.1 Will it help to restore the natural ecosystem function?</p> <p>3.1 Will it use natural rather than built solutions where appropriate?</p> <p>4.3 Will it promote a catchment based approach to the management and work with local stakeholders to deliver catchment-based solutions to water quality and quantity impacts?</p> <p>The revised text will be included in the SEA Environmental Report.</p>
44	Hampshire and Isle of Wight Wildlife Trust	<p>Q9. Taking account of the SEA Regulations and associated guidance, do you agree with the proposed assessment approach for options, programme appraisal and the Drought Plan as a whole (see Section 4)? If not, please explain why and what changes you consider are required.</p> <p>The overview provided in section 4.1 describes a process which appears logical and comprehensive. We welcome the inclusion of key questions against the various SEA objectives which consider the potential environmental benefits of the schemes and options. As the assessment progresses it will be important that this information is presented clearly and that it is made as straightforward as possible for the users of the SEA to see where environmental benefits may be delivered, either directly or through mitigation. The company should adopt an approach of delivering drought schemes which deliver environmental benefit wherever possible, accepting that these may be</p>	<p>A summary of the SEA assessment will be presented within the main text of the Environmental Report as a colour-coded visual evaluation (VE) matrix. This will display the adverse and beneficial effects for each measure and allow the drought measures to be compared easily.</p> <p>For each SEA objective, any beneficial effects of the particular drought plan option will be assessed and reported separately to any adverse effects. Understanding of any beneficial effects will be important in determining the phasing of the implementation of drought management measures, such that measures with the greatest beneficial effects and lowest adverse effects are implemented earliest wherever feasible (taking account of any legal</p>

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		more costly than schemes which deliver no benefit, or environmental harm. It is therefore important that this information is presented in a way that will enable the company, customers and stakeholders to weigh up the relative merits of different schemes in order to select those which are best, and not simply cheapest.	constraints to their implementation, for example there is a legal requirement to demonstrate exceptional shortage of rain before water use restrictions can be imposed on customers).
45	Hampshire and Isle of Wight Wildlife Trust	<p><i>Q10. Do you have any comments on the proposed presentation of the outputs from the assessment process (see Section 4)? If so, please provide details.</i></p> <p>We welcome the proposed use of the significance matrix and evaluation matrix which will provide a helpful visual output enabling readers to easily compare the merits of the differing options.</p>	Noted
46	Hampshire and Isle of Wight Wildlife Trust	<p><i>Q11. Do you consider that the overall scope and approach proposed in this Scoping Report will enable Southern Water to robustly consider environmental effects in developing its Drought Plan? If not, please explain why and what changes you consider are required.</i></p> <p>We believe that the changes suggested in our answers to the questions above will, if incorporated, provide a more robust means of assessing and presenting the environmental effects of Southern Water's drought plan.</p>	Noted

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
47	WWF	<p>1. Responsive Demand Management</p> <p>Please could you set out assumptions about per capita consumption in the drought plan scenarios. I would like to understand better how consumption rises (and varies differentially between high and low users and geographically across the region) as the drought sets in. And I would like to know assumptions related to changes in demand management as Southern Water intervenes (through communications, TUBs, etc.).</p> <p>In 2013, WWF worked with the companies and Waterwise to review drought related communications and produced this report http://www.waterwise.org.uk/data/2013_Waterwise_Drought_Report.pdf. The report concluded with a number of recommendations and I hope to see the Drought Plan feature a section explicitly on responsive demand management and communications that explains how Southern Water are taking these forward.</p> <p>WWF's Itchen Initiative project (in 2012) in which you kindly participated also included a review of best practice 'responsive demand management' here and overseas. It found that while companies already make use of responsive demand management, there is a significant opportunity to develop more extensive use of smarter demand responses to periods of below average rainfall and enhance demand responses during drought events. Examples include:</p> <ul style="list-style-type: none"> • Appeals to reduce waste, voluntary restrictions and information to nudge households to reduce water use should be used widely in response to increasing environmental water scarcity. For example in Queensland, Australia, water resource and per capita consumption levels are communicated to customers on a monthly basis. Could Southern Water work to better communicate onset of drought – with an online/app based warning system (e.g. a traffic light informed by falling river and aquifer levels and 	<p>The Drought Plan will set out the demand assumptions and the savings that are likely to be achieved through progressive implementation of drought demand management measures (e.g. Temporary Use Bans, etc.). This information will inform the assessment of demand management measures in the SEA.</p> <p>The Drought Plan will also set out Southern Water's approach to drought communications and how the company addresses demand responses. This information will inform the assessment of demand management measures in the SEA.</p> <p>The SEA process requires the consideration of alternative options, including communications with customers. The options considered will be reported in both the Drought Plan and the SEA Environmental Report.</p>

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		<p>low rainfall) and could it work the local media to feature on the local weather forecast, similar to how flood warnings are communicated?</p> <ul style="list-style-type: none"> • Smart tariffs play an important role in responsive demand management and additional incentives and penalties could be applied during dry and drought periods. These could include rewards for installing water efficiency devices during the drought or penalties for using water above some high consumption cap as proven in the US and Australia. • For commercial customers, there is also the option of interruptible tariffs, where customers who are prepared to be subjected to phased restrictions at times of drought pay a discount charge when compared to customers who need a high security of supply. • In countries experiencing long-term drought, phased mandatory restrictions, supported by appeals, tariffs and water efficiency, can deliver enhanced reductions in demand. In Queensland, mandatory restrictions include bans at certain times and/or on certain days; more discrimination and phasing of bans on particular uses with enforceable penalties for breaches. • Current use of demand-side response is determined by trigger points related to water resources status. There is an opportunity to 'smarten' triggers by replacing sharp transitions with risk-based bands, including indicators to understand when demand is rising, and environmental risk. • Finally, the evidence base for responsive demand management is less developed than that for water efficiency. WWF look to Southern Water to design trials and share evidence of the effectiveness of demand-response and drought measures. 	

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48	WWF	<p>2. Innovation and investment</p> <p>Give there seems to be considerable scope for demand side response to drought, and that drought is more likely to become a more frequent occurrence, we suggest Southern set out an innovation and research strategy for drought. Some of the demand side responses require considerable investment in communications and awareness – and not just in the critical period. It would be useful to know how Southern manages investment in drought response as part of the business plan process.</p>	These issues will be considered as part of development of the Drought Plan as well as the forthcoming Water Resources Management Plan, as appropriate (particularly the comment relating to embedding awareness outside of drought conditions).
49	WWF	<p>3. Drought recovery resilience metrics</p> <p>Resilience is about recovery from drought (and not about designing a system that prevents them!) While your level of service gives an assurance of resilience against drought, I would like to see performance commitments and metrics in relation to recovery from drought as part of your Drought Plan. In particular I am keen to see metrics in relation to ecosystem recovery and customer feedback and demand profiles and I am keen to work with you (and the industry and Ofwat) on these.</p>	These issues will be considered as part of development of the Drought Plan as well as the forthcoming Water Resources Management Plan, as appropriate.
50	WWF	<p>4. River Itchen SAC</p> <p>We understand that the consequences of the Environment Agency's proposal – implementing sustainability reductions on your abstractions on the lower Itchen now without alternative resource arrangements in place - would place the company in deficit, and increase the likelihood of a need for a Drought Permit/Order. However, WWF believe it is essential the EA take that regulatory action now to address the legal breach it currently faces re Habitats Directive and the Water Framework Directive, better safeguard this important habitat and to drive forward and accelerate the options assessment process.</p> <p>In light of this though, is vital that special arrangements relating to the use of the water resources of the Itchen and Test catchment is included in the Company's Drought Plan.</p>	<p>The drought planning process will consider the risks of requiring a Drought Order relating to Southern Water's River Itchen abstraction and the measures that will need to be taken in the water resource zone to minimise this risk.</p> <p>As the River Itchen is a Special Area of Conservation, the Habitats Regulations Assessment (HRA) process will also apply, which includes demonstrating that all appropriate feasible alternative options have been considered before implementing a Drought Order (including appropriate demand management measures, use of alternative water sources, etc.).</p>

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		<p>These must include:</p> <ul style="list-style-type: none"> • Additional action to enhance demand side response including achieving reductions in per capita consumption in the critical period. This must include communications, incentives and other behaviour change tools including partnership working (given that a number of stakeholders, including WWF, have a shared interest in helping Southern Water achieve this vital work). • Environmental safeguards – understanding what this means for which sources, and when measures should be used, through management, communications and monitoring approaches. • Increasing ecosystem resilience – using a range of tools both prior to and after drought, including catchment approaches and demand management. In our view, achieving wider conservation objectives would be a good indication of ecosystem resilience – a thriving river system will be much more tolerant and resilient to drought than one that is under chronic pressure from a range of pressures including pollution and poor morphology. Evidence from the Centre of Ecology and Hydrology also suggest that it is essential to keep TUBs and Non-essential use bans in place after the drought is over from a water resources perspective to enable ecosystem recovery. • Environmental compensation – to ‘make good’ any damage to ecosystems caused by the Drought Order/Permit. A package of works must be explicitly agreed between the company and the Agency in advance of any drought and included in the Drought Plan. We recommend that Hampshire and Isle of Wight Wildlife Trust is involved in these discussions and is resourced to deliver any compensatory package as part of the Test and Itchen Catchment Partnership. 	<p>Should the Drought Plan include the potential requirement to consider a Drought Order on the River Itchen, and the HRA of the Draft Drought Plan concludes that compensatory measures are required, then appropriate consultation with stakeholders will subsequently be carried out as to the specifics of any compensatory package as part of the consultation on the Draft Drought Plan.</p> <p>It should also be noted that the Drought Plan covers a 5 year period and the measures applicable in this time frame may well be different to those required in the longer term where it is anticipated that permanent measures will be implemented to reduce the risk to the reliability of water supplies in severe drought conditions. These longer term measures will be considered in the forthcoming Water Resources Management Plan (expected to be published as a draft for consultation in early 2018).</p>

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51	Environment Agency	<p><i>Q1. Do you have any comments on the structure and purpose of the Scoping Report? If so, please provide details.</i></p> <p>The scope is standard, complies with the legislation and guidance and adopts good practice. It is important that the decisions are clear through this process. The purpose is clear, but it would have been useful if the diagrams were embedded in the document.</p>	<p>Noted.</p> <p>The maps were presented as appendices due to the image size of the maps - and therefore to assist downloading of the document from the water company website for all stakeholders, some of whom have limited broadband facilities. Compressing the files any further renders the maps illegible.</p>
52	Environment Agency	<p><i>Q2. Do you agree with the SEA spatial area under consideration (see Figure 1-2)? If you disagree, please explain why and what changes you consider are required.</i></p> <p>The SEA scoping report appears to cover all potential drought water options identified in the plan.</p>	<p>Noted.</p>
53	Environment Agency	<p><i>Q3. Do you agree with the approach to assessing the environmental baseline (see Section 3)? If you disagree, please explain why and what changes you consider are required.</i></p> <p>There seems to be limited quantitative evidence with the baseline conditions - specific examples are included in the table below.</p> <p>It is not clear how close or whether any of Southern Water's existing practices impact upon the designated sites listed in 3.2.1. From a WFD perspective, it is also not clear how extensive INNS are within the boundary and if cross catchment pumping could pose a risk to spreading INNS.</p>	<p>Environmental baseline data have been provided at a level consistent with the strategic nature of the assessment and focused on the likely effects of the Drought Plan. We will review the baseline information to see if further data could be added where it is relevant to the Drought Plan, and this will be reflected in the SEA Environmental Report.</p> <p>More detailed data are used within the Environmental Assessment Reports for Drought Order/Permit options included in the Drought Plan and these assessments inform the SEA.</p> <p>The risk of spreading INNS will be assessed for each relevant drought plan measure and this will be reported in the SEA Environmental Report against the SEA objective covering INNS.</p>

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54	Environment Agency	<p><i>Q4. Are the plans and programmes that have been reviewed appropriate (see Section 2)? If not, please explain why.</i></p> <p>The plans and programmes that have been reviewed are appropriate, although it would be useful if plans were reviewed from third sector organisations such as Wildlife Trusts and RSPB, who would both have an interest where LNR's and SAC/SPA/RAMSAR sites may be affected.</p>	<p>Plans and programmes of third sector organisations have been reviewed where relevant to the drought plan measures being assessed; details have been added to the review of policies, programmes and plans. We have included reference to the joint RSPB, Environment Agency, CCW and Natural England guidance on SEA and biodiversity as well as RSPB's national policy statement on protection of designated sites in the review of policies, programmes and plans. The updated information will be included in the SEA Environmental Report.</p>
55	Environment Agency	<p><i>Q5. Are you aware of other plans or programmes that should be considered (see Section 2)? If so, please provide references.</i></p> <p>Not specifically, but the organisations mentioned in Q4 do have strategic plans for improving habitats/environment.</p>	<p>As explained above (Ref. 54), we have reviewed relevant strategic plans and updated the policies, programmes and plans review accordingly. Updated text will be provided in the SEA Environmental Report.</p>
56	Environment Agency	<p><i>Q6. Are you aware of any further baseline data or indicators that might provide useful information in relation to the scope of the Drought Plan (see Section 4)? If so, please provide this information or a source for the data.</i></p> <p>Further baseline data or indicators that might provide useful are Common Standards Monitoring Guidance for SPA, SAC and Ramsar sites.</p>	<p>Commons Standards Monitoring Guidance is being considered where applicable in the SEA and the accompanying HRA and Environmental Assessment Reports for relevant Drought Order/permit options.</p>
57	Environment Agency	<p><i>Q7. Taking account of the SEA Regulations and associated guidance, are the environmental issues identified for Southern Water Drought Plan appropriate (see Section 3)? If not, please explain why and what changes you consider are required.</i></p> <p>It appears the environmental issues identified are appropriate for the plans reviewed. There may be further local issues/opportunities which arise once the third sector plans/programmes are reviewed.</p>	<p>Noted – please see comments in response to Ref. 54 above.</p>

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58	Environment Agency	<p>Q8. Taking account of the SEA Regulations and associated guidance, do the environmental objectives encompass all the necessary issues (see Section 4)? If not, please explain why and what changes you consider are required.</p> <p>The scoping report does not acknowledge that in some scenarios (Habitats Directive), the Common Standard Monitoring Guidance will take precedent over WFD for designated sites. This needs to be reflected in the text.</p>	<p>Acknowledged; text updated to make this clearer and this will be reflected in the Environmental Report.</p> <p>In carrying out the SEA significance of effects of assessment (and the accompanying HRA and Environmental Assessment Reports), the Common Standards Monitoring Guidance has been considered where this is applicable to the particular designated sites in question.</p>
59	Environment Agency	<p>Q9. Taking account of the SEA Regulations and associated guidance, do you agree with the proposed assessment approach for options, programme appraisal and the Drought Plan as a whole (see Section 4)? If not, please explain why and what changes you consider are required.</p> <p>The proposed assessment approach appears appropriate providing tables are updated where new information comes to light. It would also be useful if there was a colour key for Tables 4.3 and 4.4.</p>	<p>Noted. We will provide more detail on the colour coding used in the assessment tables in the SEA Environmental Report.</p>
60	Environment Agency	<p>Q10. Do you have any comments on the proposed presentation of the outputs from the assessment process (see Section 4)? If so, please provide details.</p> <p>No comments.</p>	<p>Noted.</p>
61	Environment Agency	<p>Q11. Do you consider that the overall scope and approach proposed in this Scoping Report will enable Southern Water to robustly consider environmental effects in developing its Drought Plan? If not, please explain why and what changes you consider are required.</p> <p>The scope correctly identifies a number of social, economic and environmental benefits of water and water associated habitats and landscapes. That is welcome as far as it goes. We encourage Southern Water to adopt an ecosystem services assessment approach in the SEA, to recognise and value (not necessarily always in monetised units) the wider</p>	<p>We note the aspiration of the Environment Agency and recent guidance issued with respect to the Water Resources Management Plan process in this regard.</p> <p>We have considered how ecosystem services could be applied in respect of the SEA and concluded that this is not appropriate for this Drought Plan for the following key reasons:</p> <ul style="list-style-type: none"> • SEA is a statutory process and there are concerns that seeking to incorporate a different

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		<p>costs and benefits of various options, not just in traditional water resource terms.</p> <p>Therefore, in answer to this question, the scoping document goes some way to achieving a sensible assessment of the costs and benefits to society, but falls short of our ambition for the process to more widely assess and value the costs and benefits in ecosystem services terms.</p> <p>This points seems particularly relevant to a key question posed in table 4-1, on page 50, which asks “Will it protect or enhance natural capital and ecosystem services?” And whilst ecosystem services are not specifically mentioned in the Population and Human Health part of that same table, it is inferred in a similar key questions relating to human health and wellbeing, recreation and tourism etc.</p> <p>Adopting an ecosystem services assessment approach to this SEA would enable those questions to be properly answered.</p>	<p>assessment approach within the statutory framework could be problematic;</p> <ul style="list-style-type: none"> • There is no specific guidance yet available as to how SEA and ecosystem services could be integrated; an UKWIR project is being proposed to look at this in more detail for the future; • We consider that the environmental effects of the Drought Plan can be adequately assessed without adopting an ecosystem services approach; • Not all of the SEA topics are adequately considered within the ecosystems services approach.
62	Environment Agency	<p>General Comment and Advice</p> <p>The company as the competent authority conducting the SEA (and HRA) need to adopt an objective approach to the SEA/HRA and the company should adhere to the detail of the process set out to reach appropriate decisions. We encourage Southern Water to use this SEA (and the HRA) process to genuinely inform their DP (and the associated WRMP): to recognise environmental risks, give them due weight in the process, and select truly sustainable options in the round, and thereby also secure a more deliverable DP (and WRMP). In effect to actually implement in practice the process and purposes set out in the scoping document.</p>	<p>Noted. The SEA (and associated HRA process) is being used to inform decision-making and development of the Drought Plan. The SEA Environmental Report will set out how the SEA (and HRA) have been used and what decisions have been taken in light of the assessment work.</p>

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63	Environment Agency	<p>General Comment and Advice</p> <p>With regards to consideration of environmental risk, the SEA scoping document covers the bases well. The company should avoid measures that carry high environmental risk, for the DP (and WRMP) to be sustainable and deliverable.</p> <p>Application of the SEA (and HRA) process is key to achieving this end. It is not unknown for SEA to identify environmental risks at the plan-level, but for those options to still be selected for other reasons, on the basis that environmental risks can be addressed at project-level EIA/Appropriate Assessment at a later date. It is not unusual for project-level EIA/AA to be the responsibility of a different Competent Authority (i.e. a Local Authority, or the Environment Agency). That carries numerous risks – to the soundness and deliverability of the plan - if there is an unavoidable risk associated with an option, then an alternative, no/lower-risk option should be selected instead. Consideration of avoidance or mitigation measures need be realistic and robust to justify a conclusion that plan-level risks are acceptable and can be dealt with at project-level with any certainty.</p>	<p>Noted. The SEA has a role to play in developing the drought plan and making decisions as to those measures to be included in the plan, the consideration of alternatives and the phasing of the implementation of measures such that those measures with least adverse environmental effects are implemented ahead of those measures with greater adverse effects. However, other considerations beyond those dealt with in the SEA must also be taken into account in developing the drought plan, including the HRA process, legal obligations and requirements, Drought Plan regulations and Direction, and the statutory duties on water undertakers to maintain essential water supplies to its customers.</p>
64	Environment Agency	<p>General Comment and Advice</p> <p>We recognise that the licence changes we are implementing at this time on the Itchen, Candover and Testwood create a DO deficit for SW in a drought scenario. Consequently we accept that the company will have to apply for Drought Permits/Orders in rare circumstances, for the duration of this Drought Plan and possibly others, until alternative sources of supply come on-line. That won't negate the requirement for the company to prove a need through the tests of the Habitats Regulations for the River Itchen licences, a process that is foreseeably going to require a</p>	<p>Noted. The drought planning process will consider the risks of requiring a Drought Order relating to Southern Water's River Itchen abstraction and the measures that will need to be taken in the water resource zone to minimise this risk.</p> <p>As the River Itchen is a Special Area of Conservation, the Habitats Regulations Assessment (HRA) process will also apply, which includes demonstrating that all appropriate feasible alternative options have</p>

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
		<p>case to be made for the absence of feasible options, overriding public interest and the provision of compensation.</p> <p>We suggest that as that scenario is foreseeable, if drought conditions prevail, then it is imperative that the company start work with the Agency, NE and others to put in place as much as possible of the Drought Permit/Order work sooner rather than later, and also begin to implement a package of compensation in advance of the emergency need arising. That is appropriate even if the need does not arise in this DP period.</p>	<p>been considered before implementing a Drought Order (for example, appropriate demand management measures, use of alternative water sources, etc.).</p> <p>Discussions will be held with the Environment Agency in developing the Drought Plan in relation to these various issues.</p>
65	Environment Agency	<p>General Comment</p> <p>We would like to see consideration of the link between water resources and groundwater quality within your environmental assessment reports. For example, not just linking deployable output restrictions to water levels and local ecosystems, but linking it to how much can be taken related to groundwater quality too. This is particularly important where sources are classed as Safeguard Zones or candidate Safeguard Zones and suggest should be included under the SEA Water topic.</p>	Noted. The Environmental Assessment Reports will consider these risks where they are applicable as identified through the hydrogeological assessments. The SEA will take note of the findings.
66	Environment Agency	Please show phasing of HRA, SEA, WFD in the process diagram given in Figure 1.2.	The diagram has been revised to make it clearer as to the sequencing of the SEA, HRA and WFD assessments. The revised diagram will be included in the SEA Environmental Report.
67	Environment Agency	<p>Section 1.2.5 Page 5</p> <p>We welcome and support SW's commitment to produce EARs to inform the SEA and HRA process.</p>	Noted

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
68	Environment Agency	<p>HRA. Sections 1.2.3 and 1.3.3</p> <p>The report refers to the intention to produce an HRA to inform the SEA process. That is necessary, but nonetheless is very welcome. SW have consulted the Agency on the methodology of that HRA, as stated on page 14. However, we have yet to be consulted on the scope of or timetable for the HRA itself. It would be helpful to know when SW intend to formally consult us on that work.</p>	<p>Pre-Draft Drought Plan submission consultation on the HRA will be carried out with the Environment Agency during the period January to May 2017. Formal consultation on the HRA will be carried out once Defra gives permission to publish the Draft Drought Plan, and will follow the same consultation period as for the Draft Drought Plan.</p>
69	Environment Agency	<p>Section 1.2.8, Table 1-1</p> <p>Developing a wastewater recycling process may take too long to implement to be effective during the timescales of a drought. If a scheme is already in place or is being constructed, there could be opportunities to accelerate deliver or increase output during a drought. These schemes need to be planned in early to mitigate any issues that would arise if trying to implement during a drought event. Also, other aspects that need to be considered include “what is considered a waste” and so whether recycled water can be used or not used and the relevant circumstances. Also, restrictions on use such as not within certain Source Protection Zones, proximity to rivers, water use in amenities etc. and appropriate treatment levels.</p>	<p>Noted. As part of the Drought Plan options appraisal process, these issues and risks will be taken into account in determining which measures are appropriate to include in the Drought Plan. Delivery, regulatory and operational risks will all be considered in the decision-making process.</p>
70	Environment Agency	<p>Section 1.2.8, Table 1-1</p> <p>Page 8, table 1-1 (description of supply-side measures): Water distribution network modifications: modifications to move water from areas of relative surplus water resources to areas where a supply deficiency is likely to arise. The company should be considering to do this as part of general improvements and resilience measures rather than as specifically during a drought event.</p>	<p>“Normal” operation of the water supply system does indeed already include optimisation of water supplies to equalise the risk of supply deficiencies within the hydraulic constraints of the water supply system.</p> <p>The Drought Plan will set out those further supply system measures that could be taken early in any developing drought situation, which includes potentially re-optimising the operation of the supply system to take account of the specific spatial distribution of drought conditions</p>

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
			prevailing at the time. This may mean changing the normal optimal operating philosophy to adapt to the spatial distribution of the drought. These measures would be put into effect before other drought management options are considered (e.g. water use restrictions, Drought Permits, etc.).
71	Environment Agency	<p>Section 1.2.8 Table1-2 Table 1-2 demand side options does not include the use of media to educate the public and encourage them to use less water.</p>	<p>This was an oversight. Communication and water conservation education campaigns (including through the media) are included in the demand-side measures to be included in the Draft Drought Plan.</p> <p>The table has been updated to include additional measures. The updated table will be included in the SEA Environmental Report.</p>
72	Environment Agency	<p>Section 3 In Section 3.2.1 how much ancient woodland is there? Is the local aspiration to protect existing areas, or expand designations in next 10 years? If we don't have a baseline, we can't measure if there has been an improvement. Another example in 3.3.1. UK health in generally 'good', what does this mean for Sothern Water? How can the plan contribute towards increasing life quality and expectancy? In Recreation and Tourism, we don't know how many visitors there are to the area and how this may impact on resource. Some sections are better than others, but all need checking to ensure quantitative data is included in baseline. Greenbelt is mentioned in 3.9.1, but does not give any indication of where the green belts are located.</p>	<p>More quantitative data have been added to the baseline where possible, including figures on ancient woodland and recreation. Areas of greenbelt land have been added to the Landscape Designations and Features figure. Further, more specific data will be included in this section in the SEA Environmental Report for assessing the specific receptors and environments that are likely to be affected by the measures contained within the Drought Plan.</p>
73	Environment Agency	<p>Section 3.2.1 Page 29 Lists NERC Act important water-related priority species in the area. We assume the list is not meant to be exhaustive. Species</p>	The list of NERC species was not intended to be an exhaustive list and was designed to convey the diversity of the designated species in the study area. This this has been clarified in

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
		such as <i>Coenagrion mercurale</i> are important locally and are omitted from the list on page 29. For the purposes of clarity and to ensure the SEA is sound from the start, it would be helpful for SW to list and agree all of the NERC habitats and species they scope into this process rather than simply present an incomplete list of examples.	the updated text: "Important water-related NERC species that have been identified from baseline data in the area are listed below (this list is not exhaustive)". The list has also been updated to better reflect those species most relevant to the study area. The species and habitats scoped into the Environmental Assessment Reports for the Drought Permits and orders have been discussed with the Environment Agency and these will, in turn, inform the SEA.
74	Environment Agency	Section 3.2.1 Baseline - Priority Habitats and Species: You need to mention the protection afforded by Habitats Directive, Habitat Regulations, and Wildlife and Countryside Act. Daubenton's bat and some other UK bat species are not NERC Section 41 species, but are protected under these other pieces of legislation.	This has been clarified in the updated baseline section to be included in the SEA Environmental Report: "Species may also protected without being included on the NERC Section 41 species list, including under the Habitats Directive, Habitats Regulations and Schedule 5 of the Wildlife and Countryside Act of 1981."
75	Environment Agency	Section 3.2.1 Baseline - Priority Habitats and Species: You need to clarify how they have arrived at the list of 'Important water-related NERC species'. As mentioned above, some of the listed species are not NERC s41 species and other important species within the study area are not included (e.g. great crested newt, fen raft spider and shining ram's horn snail).	See response to comment Ref 73.
76	Environment Agency	Section 3.2.2 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," – This sentence needs updating to reflect the ongoing designation process for Marine Conservation Zones, the 3rd tranche of which is planned to be designated in 2018.	Text added to reflect the planned MCZ designation process.

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
77	Environment Agency	Section 3.2.3 Key Issues “The need to protect or enhance the region’s biodiversity, particularly within designated sites, protected species and habitats of principal importance.” – This needs clarifying to cover protected species and species of principle importance (NERC s41 species). Whilst there is some overlap, they are not necessarily the same thing.	Text amended to reflect these distinctions.
78	Environment Agency	Section 3.2.3 Page 30 And table 3-2, page 44 Reference to functioning corridors is welcome. Would be helpful to add references to habitat patches here too. Maintaining or enhancing existing corridors linking habitats is essential, but in terms of restorative measures, connectivity between fragmented habitats can be created/enhanced by habitat patches or stepping-stones, not just new corridors. Both may be needed and in some cases creating patches is more realistic and suitable than corridors. We are not making a value judgement on one or the other – we need both, and so the point is that value can be added to this document by adding reference to habitat patches in section 3.2.3 and table 3-2.	Reference to habitat patches has been added.
79	Environment Agency	Section 3.5.2 Future WFD baseline, first paragraph. It should also be noted that where deterioration has occurred between the 2009 and 2015 classification, then restoration is required to restore the earlier/better classification status. The paragraph could do with some further clarification as no deterioration is allowed within individual elements (within a given class) or overall class.	The paragraph has been updated to clarify the requirement for restoration to the 2009 status where this is applicable due to deterioration during the first WFD cycle. A separate WFD compliance and assessment report will accompany the Drought Plan and this will inform the SEA objective on WFD.
80	Environment Agency	Section 3.5.3 Page 38 The list of key issues focusses too heavily upon WFD. Reference to WFD is entirely correct, but there are other measures and tools by which to assess water baseline. Southern Water have stated they intend to challenge all of our sustainability reductions in the Test and Itchen	Text in these sections updated to reflect these comments.

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
		<p>catchments. We encourage the company to therefore consider a range of scenarios to cover the potential outcomes of a number of current licence changes. Regarding Future Baseline (Section 3.5.2) there are further constraints on abstraction of relevance here, including the adoption of CSMG flow targets to the two rivers; sustainable catchment processes; and further RSA reductions.</p>	
81	Environment Agency	<p>Page 38 Flooding is not viewed as a key issue for the SEA water topic in relation to the Drought Plan because none of the drought management measures are likely to involve the construction of permanent physical infrastructure within areas at risk of flooding or contribute to an increase in flood risk. This seems like a sensible approach, although we will expect any potential impacts on flooding (particularly from the implementation of any potential mitigation measures) would need to be considered within each of the detailed Drought Permit environmental assessment reports as necessary.</p>	<p>No potential impacts on flooding are considered likely but should any impacts be identified during the SEA (and Environmental Assessment Report) process, these will be reported in the SEA.</p>
82	Historic England	<p>Based on previous Drought Plan consultations we have encountered very few issues to concern us except when significant new or expanded infrastructure is proposed, such as reservoirs or pipelines that may have impacts on archaeology or landscape character (which tends to be picked up as part of the WMRP). In the case of the current draft Drought Plan it is unlikely that there are going to be significant issues in the SEA in our area of remit and, therefore, I think the scope as proposed is sufficient in respect of the cultural historic environment.</p> <p>If you think there may be impacts on heritage assets, such as scheduled monuments, registered parks and gardens, or listed buildings, arising from specific proposals in the draft Plan we would be happy to discuss these with you and</p>	<p>Noted and thank you for the offer of assistance of the appropriate specialist advisor should this be required. We will advise you as soon as possible if any impacts on heritage assets are identified and consult with you as appropriate.</p>

Ref.	Consultee	Comment	How comment to be addressed in the Draft Drought Plan Environmental Report
		advise accordingly on appropriate avoidance or mitigation measures. Please let me know if this is the case and I will ensure that the most appropriate specialist adviser is made aware.	

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	
<p>The Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979)</p> <p>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.</p> <p>Enforced in European legislation through the Habitats Directive (92/43/EEC) and Birds Directive (79/409/EEC).</p>	<p>The impacts of the Drought Plan options on internationally designated sites, species and important Bird habitats must be considered as part of the SEA.</p>
<p>The Bonn Convention on the Conservation of Migratory Species of Wild Animals (1983)</p> <p>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).</p>	<p>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.</p>
<p>The Cancun Agreement (2011) & Kyoto Agreement (1997)</p> <p>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.</p>	<p>The SEA should seek to promote a reduction in greenhouse gas emissions.</p>
<p>The Convention for the protection of the architectural heritage of Europe (Granada Convention)</p> <p>This sets the framework for the approach to conservation across Europe.</p>	<p>The SEA should take into account the need to conserve heritage.</p>
<p>COP21 climate change summit, Paris, 2015</p> <p>Commitment to cut carbon emissions which came into force in November 2016.</p>	<p>The SEA should refer to the need to reduce carbon emissions.</p>
<p>The European Convention on the protection of archaeological heritage (Valletta Convention)</p>	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
International	
<p>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.</p>	<p>The SEA should take into account the need to conserve heritage.</p>
<p>Council of Europe (2003) European Soils Charter</p>	
<p>Sets out common principles for protecting soils across the EU and will help.</p>	<p>The SEA should seek to ensure that the quality of the regions land, including soils, is protected or enhanced.</p>
<p>Council of Europe (2006), European Landscape Convention</p>	
<p>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 Collaborate with partners across the UK and Europe.</p>	<p>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.</p>
<p>The Environment Noise Directive (Directive 2002/49/EC)</p>	
<p>The END aims to define a common approach intended to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to the exposure to environmental noise. 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.</p>	<p>The SEA assessment framework should include for the protection against excessive noise.</p>
<p>European Commission (2008), The 2008 Ambient Air Quality Directive (2008/50/EC)</p>	
<p>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.</p>	<p>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.</p>
<p>European Commission (2009) Promotion of the Use of Energy from Renewable Sources Directive (2009/28/EC)</p>	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
International	
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)	
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, 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; 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 (2011) The EU Biodiversity Strategy to 2020	
The Directive seeks to: Halt the loss of biodiversity and ecosystem services in the EU; 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, 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 or contamination of land that creates a significant risk to human health.
European Commission (2000), The Water Framework Directive (2000/60/EC)	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
International	
<p>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.</p> <p>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.</p>	<p>The SEA should seek to promote the protection and enhancement of all water resources.</p>
European Commission, Drinking Water Directive (1998/83/EC) amended 2015	
<p>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.</p> <p>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.</p>	<p>The SEA should seek to ensure that objectives address water quality in the region, particularly drinking water quality.</p>
Directive 2006/118EC of the European Parliament and of the council of 12 December 2006 on the protection of groundwater against pollution and deterioration	
<p>This Directive establishes specific measures as provided for in Article 17(1) and (2) of Directive 2000/60/EC (Water Framework Directive) in order to prevent and control groundwater pollution. This Directive is designed to prevent and combat groundwater pollution.</p>	<p>The SEA should seek to maintain, protect and improve water quality across the region.</p>
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	
<p>The revised Bathing Water Directive (BWD) of 2006 updated and simplified the rules of the previous BWD.</p> <p>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).</p>	<p>The SEA should seek to maintain, protect and improve water quality across the region</p>
European Commission, Urban Waste Water Treatment Directive (1991/271/EC)	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
International	
<p>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.</p>	<p>The SEA should seek to maintain, protect and improve water quality across the region.</p>
European Commission Nitrates Directive (91/676/EEC)	
<p>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.</p>	<p>The SEA should seek to maintain, protect and improve water quality across the region.</p>
European Commission (1992), Habitats Directive (1992/43/EC)	
<p>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.</p>	<p>The impacts of the Drought Plan options on internationally designated sites and species must be considered as part of the SEA.</p>
European Commission (2013) The 7 th Environmental Action Programme (EAP) to 2020 Living well, within the limits of our planet’ (1386/2013/EU)	
<p>The EAP aims to guide environment policy until 2020 with three key objectives: 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.</p>	<p>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.</p>
European Commission (2012) Blueprint to Safeguard Europe’s Water Resources	
<p>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. Filling the gaps of the current framework, particularly in relation to the tools needed to increase water efficiency.</p>	<p>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.</p>

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
International	
<p>European Commission (2006) Thematic Strategy for Soil Protection</p> <p>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.</p>	<p>The SEA assessment framework should include soils.</p>
<p>European Commission (2005) Thematic Strategy on Air Pollution</p> <p>This strategy supplements current legislation. It sets out objectives for air pollution and proposes measures for achieving them by 2020.</p>	<p>The SEA should take account of the need to reduce air pollution through the SEA objectives.</p>
<p>EC Regulation 1100/2007 of 18 September 2007 establishing measures for the recovery of the stock of European eel</p>	<p>establishing measures for the recovery of the stock of European eel</p>
<p>EC Regulation 1100/2007 of 18 September 2007 establishing measures for the recovery of the stock of European eel</p> <p>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.</p>	<p>The SEA should take account of the need to protect European eel.</p>
<p>European Commission, Environmental Liability Directive (2004/35/EC)</p>	
<p>The Directive establishes a framework for environmental liability based on the "polluter pays" principle, with a view to preventing and remedying environmental damage.</p>	<p>The SEA should seek to ensure that the Drought Plan avoids causing direct or indirect damage to the aquatic environment or contamination of land that creates a significant risk to human health.</p>
<p>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</p>	<p>on the prevention and management of the introduction and spread of invasive alien species</p>
<p>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.</p>	<p>The SEA should include an objective relating to invasive alien species.</p>
<p>Ramsar Convention, The Convention on Wetlands of International Importance (1971)</p>	
<p>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</p>	<p>The impacts of the Drought Plan options on important wetland habitats must be considered as part of the SEA.</p>

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
International	
and to plan for the "wise use", or sustainable use, of all of the wetlands in their territories.	
United Nations (1992), Convention on Biological Diversity (CBD)	
<p>The main objectives are:</p> <ul style="list-style-type: none"> Conservation of biological diversity Sustainable use of its components Fair and equitable sharing of benefits arising from genetic resources 	<p>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.</p>
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	
<p>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.</p> <p>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).</p> <p>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.</p>	<p>The SEA should seek to provide easily understood information to the public on the environmental implications of the Drought Plan and its constituent options.</p>
United Nations (2002), Commitments arising from the World Summit on Sustainable Development, Johannesburg	
<p>The World Summit on Sustainable Development proposed broad-scale principles which should underlie sustainable development and growth.</p> <p>It included objectives such as:</p> <ul style="list-style-type: none"> Greater resource efficiency Work on waste and producer responsibility New technology development Push on energy efficiency Integrated water management plans needed Minimise significant adverse effects on human health and the environment from chemicals by 2020. 	<p>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.</p> <p>The SEA should seek to promote the achievement of the sustainable development objectives outlined in this plan.</p>

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.
The Climate Change Act 2008	
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 2010 Conservation of Habitats and Species Regulations 2010 (as amended by the Conservation of Habitats and Species (Amendment) Regulations 2011 and 2012)	
The Conservation of Habitats and Species Regulations 2010 (as amended) 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 options species diversity must be considered as part of the SEA.
The Countryside and Rights of Way (CROW) Act, 2000	
<p>The Act provides for increased public access to the countryside and strengthens protection for wildlife.</p> <p>The main provisions of the Act are as follows:</p> <ul style="list-style-type: none"> Extends the public’s ability to enjoy the countryside whilst also providing safeguards for landowners and occupiers Creates new statutory right of access to open country and registered common Land Use Consultants Modernises Right of Way system Gives greater protection to SSSIs Provides better management arrangements for AONBs Strengthens wildlife enforcement legislation. 	<p>The Drought Plan may have an effect on public access to the countryside.</p> <p>The SEA should include objectives that take into account public access, protection of SSSIs and the management of relevant landscape designations.</p>
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	
<p>Aims to give guidance on practical implementation of the Water Framework Directive (WFD).</p> <p>The river basin planning process involves setting environmental objectives for all groundwater and surface waters (including</p>	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	
estuaries and coastal waters) within the river 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.
Environment Agency (2013) Climate change approaches in water resources planning – Overview of new methods	
Report provides research findings, case studies of the application of UKCP09 and new methods and high-level guidelines.	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 (2012) National Planning Policy Framework	
<p>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:</p> <ul style="list-style-type: none"> 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; Facilitating the sustainable use of minerals. 	<p>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.</p>

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
Department for Energy and Climate Change (2007) Energy White Paper: Meeting the Energy Challenge	
<p>Meeting the energy challenge', sets our international and domestic energy strategy, in the shape of four policy goals:</p> <ul style="list-style-type: none"> Aiming to cut CO2 emissions by some 60% by about 2050, with real progress by 2020; Maintaining the reliability of energy supplies; Promoting competitive markets in the UK and beyond; Ensuring every home is heated adequately and affordably. 	<p>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.</p>
Department of energy and climate change (2011) Planning our electric future: a White Paper for secure, affordable and low carbon electricity	
<p>This white paper outlines a package of reforms so that by 2030 there will be a flexible, smart and responsive electricity system, powered by a range of low carbon sources of electricity. This includes engaging with consumers on energy use. Decarbonisation is important in meeting the 2050 targets.</p>	<p>The implementation of the 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.</p>
Defra (2011) Government Review of Waste Policy in England 2011	
<p>The review is guided by the "waste hierarchy", EU obligations and targets on waste management, carbon impacts, environmental objectives and the costs and benefits of different policy options.</p> <p>The Governments vision include a move beyond the current throwaway society to a "zero waste economy" in which material resources are re-used, recycled or recovered wherever possible, and only disposed of as the option of very last resort.</p>	<p>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.</p>
Defra (2012) The UK Climate Change Risk Assessment 2012 Evidence Report	
Five themes are identified that form the priorities for adaptation in the UK.	The SEA should take into account the need for climate change adaptation.
Defra (2011) Water for Life - Water White Paper	
<p>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</p>	<p>The Drought Plan should take into account the contents of this paper.</p>

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
<p>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</p>	
Defra and Environment Agency (2015) How to Write and Publish a Drought Plan	
<p>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:</p> <ul style="list-style-type: none"> Water flow or level regimes; Water quality; Ecology (sensitive features, habitats and species); Designated sites (habitats and species); Fish populations (in particular migratory fish). <p>Additionally, an assessment must include effects on WFD status and consider effects on river basin management plans. Assessments should also take into account the Handbook for Scoping Projects: Environmental Assessment and the EclA Guidelines.</p> <p>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.</p> <p>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.</p>	<p>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.</p>
Environment Agency (2016) Drought plan guideline extra information, Environmental assessment for water company drought plans	
<p>This supplements the guidance provided on how to write and publish a drought plan. It provides guidance on how to develop an</p>	<p>An SEA is being undertaken for the Drought Plan.</p>

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
<p>environmental assessment to support a Drought Plan. It includes the need to consider whether an SEA is required for a drought plan.</p>	
<p>Defra (2011) The Natural Choice: securing the value of nature. The Natural Environment White Paper</p>	
<p>Addresses the Government’s approach to valuing economic and social benefits of a healthy natural environment while continuing to recognise nature’s intrinsic value. It describes the vision of the Government for this to be the first generation to leave the natural environment of England in a better state than it inherited, requiring placing the value of nature at the heart of decision-making – in Government, local communities and businesses. Approaches to mainstream the value of nature across society include: Facilitating greater local action to protect and improve nature; 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</p>	<p>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: 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.</p>
<p>Defra (2011) UK National Ecosystem Assessment and Defra, 2014, UK National Ecosystems Assessment Follow on, Synthesis of Key Findings</p>	
<p>Ecosystems services from natural capital contribute to the economic performance of the nation. Information and tools to enable decision makers to understand the wider value of ecosystems and their associated services.</p>	<p>For the purposes of the readership integrating an ecosystems services approach into the SEA is not being undertaken. However, it is realised that through the ‘objective-led’ approach, many of the services relevant to the 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</p>

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
	<p>the Drought Plan formulation and selection of Drought Plan options during times of Drought.</p> <p>In the event of further guidance being issued on incorporating ESA into SEA, the anticipated approach is sufficiently flexible that it should be able to accommodate this (subject to timing).</p>
Defra (2010), Making Space for Nature: A Review of England’s Wildlife Sites and Ecological Network	
<p>This independent review of England’s wildlife sites and the connections between them sets objectives and recommendations to help achieve a healthy natural environment that will allow our plants and animals to thrive.</p>	<p>The SEA should seek to maintain or enhance the quality of habitats and biodiversity.</p>
Defra (2009) Safeguarding our soils – A Strategy for England	
<p>The new Soil Strategy for England – Safeguarding our Soils – outlines the Government’s approach to safeguarding our soils for the long term. It provides a clear vision to guide future policy development across a range of areas and sets out the practical steps that we need to take to prevent further degradation of our soils, enhance, restore and ensure their resilience, and improve our understanding of the threats to soil and best practice in responding to them.</p> <p>The 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.</p>	<p>The SEA should seek to ensure that the quality of the regions soils and their management is protected or enhanced.</p>
Defra (2015) The Great Britain Invasive Non-native Species Strategy	
<p>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.</p>	<p>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.</p>
Defra (2008) Future Water: The Government’s water strategy for England	
<p>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</p>	<p>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</p>

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
<p>supply, water quality in the natural environment, surface water drainage, river and coastal flooding, greenhouse gas emissions and charging.</p> <p>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.</p>	<p>region, the quality of aquatic ecology, drinking water quality, resource use, energy use and greenhouse gas emissions, and adaptation to climate change.</p>
Defra (2007) The Air Quality Strategy for England, Scotland and Wales	
<p>This strategy identifies air quality objectives and policy options to further improve air quality in the UK from into the long term. The options are intended to provide important benefits to quality of life and help protect the environment as well as the direct benefits to public health.</p>	<p>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.</p>
Defra (2011) Biodiversity 2020: A Strategy for England’s Wildlife and Ecosystem Services	
<p>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; Improving our knowledge.</p>	<p>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 take regards of priority species.</p>
Defra (2008) England Biodiversity Strategy –climate change adaptation principles	
<p>Government strategy presenting five principles that are fundamental to conserving biodiversity during climate change. The precautionary principle underlies all the principles.</p>	<p>The SEA must consider the impacts on biodiversity whilst also taking into account the potential for future climate change.</p>
Defra (2005) Making space for water: taking forward a new government strategy for flood and coastal erosion risk management in England	
<p>The strategy outlines how to manage the risks from flooding and coastal erosion in the UK. The strategy aims to reduce the threat of</p>	<p>The SEA should seek to ensure that flood risk in the region is not adversely affected by the implementation of the Drought Plan.</p>

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
flooding to people and their property, and to deliver the greatest environmental, social and economic benefit, consistent with the Government's sustainable development principles.	
Defra (2005) Securing the Future: Delivering UK Sustainable Development Strategy	Sustainable Development Strategy
The strategy for sustainable development aims to enable all people to satisfy their basic needs and enjoy a better quality of life without compromising the quality of life of future generations. The strategy places a focus on protecting natural resources and enhancing the environment.	The SEA must seek to ensure that objectives relating to sustainable development, sustainable resource use and protecting the natural environment, are considered when assessing the potential impacts of the 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 (2006) Sustainable Farming and Food Strategy: Forward look	
This Forward Look considers the Government's priorities on sustainable farming and the food sector in accordance with Ed Miliband's 'One Planet Farming' speech. Its key topics are Succeeding in the Market, Improving the environmental performance of farming, Sustainable consumption and Production, Climate Change and Agriculture and Animal Welfare and Health in order to work towards economic, environmental and social goals.	The implementation of the Drought Plan may have some indirect links with the food industry, through ensuring the availability of water for food based activities and farm nutrient and fertiliser wash and run off. The SEA should also seek to promote the most effective use of the region's natural resources, including soil, biodiversity and energy resources.
Defra (2013) The Programme: Making the country resilient to a changing climate	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
<p>This contains a number of objectives and actions under the headings of built environment, infrastructure, healthy and resilient communities, agriculture and forestry, natural environment, business and local government. Flooding and pressure on water services are considered to be cross cutting risks that are important to each chapter. Drought is referred to in terms of the risk to health and loss of forest productivity.</p>	<p>The SEA should consider the potential to include adaptive measures for climate change.</p>
Defra (2015) The government’s response to the Natural Capital Committee’s third State of Natural Capital report	
<p>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.</p>	<p>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.</p>
Defra (2016) Single Departmental Plan 2015-2020	
<p>The objectives include: A cleaner, healthier environment, benefitting people and the economy. A world leading food and farming industry. A thriving rural economy, contributing to national prosperity and wellbeing. A nation better protected against floods, animal and plant diseases and other hazards, with strong response and recovery capabilities.</p>	<p>The SEA should take account of these objectives.</p>
Defra (2011) Drought Plan Direction 2011	
<p>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’.</p>	<p>The Drought Plan and SEA to take account of this guidance.</p>

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
Department for Culture, Media and Sport (2001) The Historic Environment – A Force for the Future	
This strategy outlines the Governments policy regarding the historic environment. The strategy has key aims and objectives that demonstrate the contribution the historic environment makes to the country’s economic and social wellbeing.	The implementation of the Drought Plan may have an influence on the heritage of the region. The SEA should seek to ensure any adverse effects on heritage assets are minimised or avoided.
The Energy Act 2013	
This provides the legislative framework for delivering secure, affordable and low carbon energy. It includes provisions for decarbonisation,	The implementation of the 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 resources without having negative effects on other aspects of the Environment.
Environment Agency (2014) Corporate Plan 2014 - 2016	
This sets out the EA’s priorities for the environment between 2014 and 2016. Priority areas include: A changing climate Increasing the resilience of people, property and businesses to the risks of flooding and coastal erosion Protecting and improving water, land and biodiversity	The SEA should seek to ensure that priorities are also reflected in the SEA objectives particularly regarding the protection and improvement of water, land and biodiversity.
Environment Agency (2010), Water Resources Action Plan for England and Wales	
The strategy has four main aims: Adaptation to and mitigation of climate change; A better water environment; Sustainable planning and management of water resources; People valuing water and the water environment.	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	The SEA should seek to ensure that strategy objectives are also reflected in the SEA objectives, particularly around water resource use and availability in the region.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
<p>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.</p>	
Environment Agency (2015) Creating a Better Place: Environment Agency Corporate Strategy 2014-2016	
<p>The strategy sets out the EA's ambitions for the environment between 2014 and 2016. Priority areas include: A changing climate Increasing the resilience of people, property and businesses to the risks of flooding and coastal erosion Protecting and improving water, land and biodiversity Improving the way the EA works as a regulator to protect people and the environment and support sustainable growth</p>	<p>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.</p>
Environment Agency (2013), Managing Water Abstraction	
<p>This sets out how the EA manages water resources in England and Wales.</p>	<p>The SEA should consider the range of impacts that changes to abstractions could have on the environment, including water bodies, biodiversity, and water users.</p>
Environment Agency and other lead authorities: Shoreline Management Plans	
<p>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.</p>	<p>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.</p>
Environment Agency (undated) WFD River Basin Characterisation Project: Technical Assessment Method - River abstraction and flow regulation	
<p>This paper describes the method used to assess the likelihood of river water bodies</p>	<p>Implementation of the Drought Plan may impact river water quality. The SEA should</p>

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
achieving the relevant WFD objectives as a result of artificial influences on low river flows.	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 2002 - 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.	
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.	The SEA should seek to ensure that the guidance provided by the regulations is considered when assessing the Drought Plan.
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	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
<p>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.</p> <p>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.</p>	<p>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.</p>
English Heritage (2010) Heritage at Risk	
<p>Heritage at Risk is a national project that aims to identify the endangered sites (historic buildings and places with increased risks of neglect and decay) and then help secure them for the future. Heritage at Risk Registers were most recently published in 2015.</p>	<p>The SEA should seek to protect and enhance heritage and landscape.</p>
English Heritage (2008) Climate Change and the Historic Environment	
<p>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.</p>	<p>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.</p>
Flood and Water Management Act, 2010 as amended	
<p>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.</p>	<p>The Drought Plan also aims to ensure continuity of water supplies across the region are maintained.</p>
Historic England (2013) Strategic Environmental Assessment, Sustainability Appraisal and the Historic Environment	
<p>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.</p>	<p>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.</p>

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
	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.
HM Treasury (2015) Fixing the Foundations: Creating a More Prosperous Nation	
This report refers to the importance of productivity. The government's framework for raising productivity has two pillars: Encouraging long term investment in economic capital, including infrastructure, skills and knowledge; Promoting a dynamic economy that encourages innovation and helps resources flow to their most productive use. A fifteen point plan for productivity is provided.	The SEA should take into account the need to raise productivity via long term investment and a dynamic economy.
HM Treasury Infrastructure UK (2014) National Infrastructure Plan	
The Plan focuses on economic infrastructure: the networks and systems in energy, transport, digital communication, flood protection, water and waste management. These are all critical to support economic growth through the expansion of private sector businesses across all regions and industries, to enable competitiveness and to improve the quality of life of everyone in the UK. The objectives for the water sector are 'to secure a fair deal for customers while enabling water companies to continue to attract low-cost investment needed to provide the high quality, resilient water services customers want.'	The 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.
Natural England's standing advice on protected species	
This standing advice comprises a number of guides on the following protected species: Bats Great crested newts Badgers Hazel dormice Water voles Otters Wild birds Reptiles Protected plants White-clawed crayfish	The SEA should seek to protect protected species and include this in the SEA objectives.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
<p>Invertebrates Freshwater fish Natterjack toads Ancient woodland and veteran trees</p>	
Natural England (2014) Site Improvement Plans (SIPs) for Natura 2000 Sites	
<p>SIPs have been developed for each Natura 2000 site in England. They provide high level overviews of the issues affecting the condition of the Natura 2000 features on these sites and outlines the priority measures that are needed to improve the condition of the features. SIPs are live documents.</p>	<p>The SEA should take into account the relevant SIPs for Natura 2000 sites that may be affected by the Drought Plan and include the conservation and enhancement of designated sites in the SEA objectives.</p>
Natural England National Character Area (NCA) Profiles	
<p>Natural England has defined a series of 120 National Character Areas as a means to conserve nature in England. They are areas of countryside identified by the unique combination of physical attributes, wildlife, land use and culture.</p>	<p>The SEA should take account of NCA profiles and include SEA objective relating to the protection of landscape character.</p>
The Natural Environment and Rural Communities Act (NERC), 2006	
<p>This Act makes provision about bodies concerned with the natural environment and rural communities in connection with wildlife, sites of special scientific interest, National Parks and the Broads. The Natural Environment and Rural Communities Act is designed to help achieve a rich and diverse natural environment and thriving rural communities.</p>	<p>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 Rural Communities Act, should be addressed.</p>
Planning (Listed Buildings and Conservation Areas) Act 1990	
<p>This addresses listed buildings including prevention of deterioration and damage and preservation and enhancement of conservation areas.</p>	<p>The Drought Plan and SEA should take account of the need to protect listed buildings and conservation areas.</p>
Salmon and Freshwater Fisheries Act, 1975 (amended)	
<p>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</p>	<p>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.</p>

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
<p>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.</p>	
<p>The Water Act, 2003</p>	
<p>The Water Act 2003 is in three Parts, relating to water resources, regulation of the water industry and other provisions. The four broad aims of the Act are: The sustainable use of water resources; Strengthening the voice of consumers; A measured increase in competition; The promotion of water conservation.</p>	<p>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.</p>
<p>The Water Environment (WFD) (England and Wales) Regulations, 2003</p>	
<p>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.</p>	<p>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.</p>
<p>Water Resources Act, 1991 (Amendment) (England and Wales) Regulations 2009 SI3104</p>	
<p>Amends Water Resources Act 1991 by extending the use of Water Protection Zones and Works Notices, in particular to deal with harm to aquatic ecosystems caused by the physical characteristics of a water course or lake, such as quantity, structure and substrate of river/lake bed.</p> <p>Aligns the Water Resources Act with the hydromorphological requirements of the WFD</p>	<p>The SEA should include objectives that cover hydromorphological aspects and seek to ensure that hydromorphological features within the plan are maintained or enhanced.</p>
<p>Wildlife and Countryside Act, 1981</p>	
<p>The Act is the principle mechanism for providing legislative protection of wildlife in Great Britain.</p> <p>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.</p>	<p>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.</p>

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
<p>The Act also improved protection for the most important wildlife habitats.</p>	
<p>UKTAG on the WFD Guidance Documents (various dates) e.g. Phase 3 Review of Environmental Standards</p>	
<p>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.</p>	<p>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.</p>
<p>UK Climate Projections UKCP09. UKCIP, 2009</p>	
<p>The UKCP09 Projections provide a basis for studies of impacts and vulnerability and decisions on adaptation to climate change in the UK over the 21st century. Projections are given of changes to climate, and of changes in the marine and coastal environment; recent trends in observed climate are also discussed.</p>	
<p>The methodology gives a measure of the uncertainty in the range of possible outcomes; a major advance beyond previous national scenarios. The Projections will allow planners and decision-makers to make adaptations to climate change. In order to do so they need as much good information as possible on how climate change will evolve. They are one part of a UK government programme of work to put in place a new statutory framework on, and provide practical support for, adaptation.</p>	<p>The SEA should also use UKCP09 projections in the broader assessment of climate change effects and any potential cumulative effects. For example, the ecological requirements of aquatic habitats that may be affected by the Drought Plan will also be influenced by climate change.</p>
<p>Water Industry Act 1991</p>	
<p>This makes provision for general duties of water undertakers including those associated with water resources management plans and sets out supply duties.</p>	<p>The Drought Plan must take into account this legislation.</p>
<p>The Water Resources Management Plan Regulations 2007</p>	
<p>This provides the legislation for the preparation of water resources management plans.</p>	<p>The Drought Plan should take account of these requirements.</p>
<p>Defra (2002) Working with the grain of nature: a biodiversity strategy for England</p>	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
<p>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.</p> <p>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).</p>	<p>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.</p>
Defra (2013) Catchment Based Approach: Improving the quality of our water environment	
<p>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.</p>	<p>The Drought Plan should take into account the contents of this paper and follow the catchment based approach where appropriate.</p>
Environment Agency and RSPB (2004) Strategic Environmental Assessment and Biodiversity: Guidance for Practitioners	
<p>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.</p>	<p>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.</p>
Opportunities to enhance biodiversity should also be sought wherever possible.	
Defra, Environment Agency, Natural England, Forestry Commission England (2016) Creating a great place for living	
<p>Strategic objectives include: Environment: a cleaner, healthier environment, benefitting people and the economy; Food and farming: A world leading food and farming industry; Rural: A thriving rural economy, contributing to national prosperity and wellbeing; Protection: a nation better protected against floods, animal and plant diseases and other</p>	<p>The Drought Plan and SEA needs to take account of these objectives.</p>

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
hazards, with strong response and recovery capabilities.	

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

The area includes a variety of sites that are designated at a European, national or local level as important for biodiversity, flora and fauna, including:

- 22 Special Protection Areas (SPA)¹ and 1 proposed SPA (Table C1)
- 21 Special Areas of Conservation (SAC)² and 0 proposed SACs (see Table C2)
- 17 Ramsar Sites and 1 proposed Ramsar site (Table C3)
- 563 Sites of Special Scientific Interest (SSSI)³
- 35 National Nature Reserves (NNR)⁴
- 272 Local Nature Reserves (LNR)⁵
- 16 coastline-related Marine Conservation Zones (MCZ)⁶
- 1 Biosphere Reserve (Brighton and Lewes Downs)⁷

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.

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.

■ 24 National Character Areas (NCA)⁸

Figure C1 shows the location of the European designated sites and Figure C2 shows the National designated sites. There are no Sites of Community Importance (SCI)⁹ in the area.

Natural England National Character Areas (NCAs) are discussed under the Landscape and Visual Amenity topic.

Priority Habitats and Species

Habitats designated under the Natural Environmental and Rural Communities (NERC) Act¹⁰ within the area include rivers and streams (e.g. sensitive chalk rivers), reedbeds, fens and water meadows. Important water-related NERC species that have been identified from baseline data in the area are listed below (this list is not exhaustive).

- | | |
|-------------------------|--------------------------|
| ■ Otter | ■ Depressed River Mussel |
| ■ Water vole | ■ Desmoulins Whorl Snail |
| ■ Atlantic salmon | ■ Snipe |
| ■ European eel | ■ Lapwing |
| ■ Sea/Brown trout | ■ Daubenton's Bat |
| ■ River lamprey | ■ Pipistrelle Bat |
| ■ White clawed crayfish | |

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 km² 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).

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 SCIs are protected sites that have been adopted by the European Commission but not yet formally designated by the government of each country.

¹⁰ 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.

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. 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 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. There is an ongoing designation process for Marine Conservation Zones with the third tranche of designations planned to be finalised in June 2019 following consultation in summer 2018.

The Natural Environment White Paper¹¹ 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.

¹¹ Defra (2011) The Natural Choice: securing the value of nature. Natural Environment White Paper.

Table C1 Special Protection Areas (SPA) within the Study Area

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

Table C2 Special Area of Conservation (SAC) within the Study Area

Arun Valley
Ashdown Forest
Avon Valley
Chichester and Langstone Harbours
Dorset Heathlands
Dungeness, Romney Marsh and Rye Bay
Medway Estuary & Marshes
New Forest
Outer Thames Estuary
Pagham Harbour
Porton Down
Portsmouth Harbour
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 II

Table C3 Ramsar Sites within the Study Area

Ramsar
Portsmouth Harbour
Pevensey Levels
Arun Valley
Medway Estuary & Marshes
The Swale
Avon Valley
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
Proposed Ramsar
Dungeness, Romney Marsh and Rye Bay

Population and Human Health

Baseline

Population

The greater South East region is a densely populated part of the UK. The annual average percentage growth rate for the South East over the 10 year period 2004-2014 was 0.88%¹². The population is projected to increase to 9.6 million by 2024 (8.1% increase)^{13,14}.

¹² ONS (2016) Overview of UK population, 26 February 2016:

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/articles/overviewoftheukpopulation/february2016#how-does-the-population-differ-across-the-uk>

¹³ ONS (2016) Subnational population projections for England: 2014-based -

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/subnationalpopulationprojectionsforengland/2014basedprojections#projections-for-regions-london-region-is-projected-to-grow-the-fastest>

¹⁴ ONS (2015) Housing Statistical Release.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/407556/Household_Projections_-_2012-2037.pdf

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 152,000 unmeasured households and 848,000 measured households. There is a resident population in the Southern Water supply region of just over 2.4 million. In addition, the company supplies water to 5,500 unmeasured non-households and 55,000 measured non-households.

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 ONS Sustainable Development Indicators report¹⁵. In general, the health of the population is good for the UK with the healthy life expectancy for both men and women increasing during the period of 2009 to 2011, reaching 64.2 years for men and 66.1 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 are over 12 million domestic day visitors a day (2011-2013) and the tourism industry makes up 7 to 11 % of employment within the study area¹⁶. 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 the 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, 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). Angling is a popular pastime with over 339,000 rod licences sold in 2014/15 in the Environment Agency South East Region¹⁷.

¹⁵ ONS (2015). Sustainable Development Indicators: July 2015. Available from: <http://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/articles/sustainabledevelopmentindicators/2015-07-13#society>

¹⁶ <http://www.neighbourhood.statistics.gov.uk/HTMLDocs/Tourism/atlas.html>

¹⁷ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/459174/FishStatsReport2014.v4.pdf (accessed 23/06/16)

Public areas of open space, National Parks (see Landscape and Visual Amenity topic), country parks¹⁸, 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 as a whole has shown a greater level of resilience to the effects of the recession that followed the banking crisis in 2008 compared to other parts of the UK. This is evident in economic indicators such as house prices and un-employment rates. Compared to a UK average in 2015¹⁹ of 5.1%, the unemployment rate in the South East was 3.9%²⁰. However, all are considerably lower than in 2010.

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 7.8% across the South East (10 years from 2012 to 2022)²¹.

In response to recent studies access to the recreational resources, green spaces and the historic environment will have greater importance in future planning²². For example, the National Ecosystem Assessment and the Marmot Review, Fair Society, Healthy Lives, demonstrate the positive impact that nature has on mental and physical health and as a result the Government intends to establish a Green Infrastructure²³. Partnership with civil society to support the development of green

¹⁸ Area designated for people to visit and enjoy recreation in a countryside environment

¹⁹ National Statistics: Regional Trends No.43 2010/11 edition

http://www.statistics.gov.uk/downloads/theme_compendia/RegionalSnapshot/rt43-rc-profiles.pdf

²⁰ ONS (2016) Regional Labour Market February 2016. <http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tc%3A77-394305>

²¹ ONS (2014) Subnational population projections for England: 2012-based -

<http://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/subnationalpopulationprojectionsforengland/2014-05-29>

²² Defra (2011) The Natural Choice: securing the value of nature, The Natural Environment White Paper

²³ 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.

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 region²⁴.

Material Assets and Resource Use

Baseline

Water Use

Southern Water supplies nearly 530 million litres of drinking water each day from its 94 water supply works along over 13,800 kilometres of water mains to customers' taps. Between 2015 and 2020, Southern Water are proposing to save an extra two million litres of water each day by repairing and replacing pipes that lose treated water from its distribution network. In 2015, Southern Water had the lowest leakage levels of any of the water and sewerage companies. Southern Water is actively pursuing measures to encourage its customers to reduce their water use and use water wisely, particularly in dry conditions. 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 2015/16, 88% of Southern Water's domestic customers were being charged on a metered basis, with the per capita consumption of 129 l/d/day for metered properties, 158 l/h/day for unmetered properties and 124 l/h/day for all households.

Resource use and waste

There is an ongoing need for society to reduce the amount of waste it generates, by using materials more efficiently, and improving the management of waste that is produced. Waste going to landfill has more than halved over the period 2004/5 to 2014/15 (19,822 thousand tonnes to 6,361 thousand tonnes) and a rate of 24%; household recycling rates have climbed to nearly 44% (2014/15)²⁵; waste generated by businesses declined by 29% in the six years to 2009 and business recycling rates are above 50%²⁶. In line with the widely adopted 'waste hierarchy', best practice for waste management is to reduce, re-use, recycle and recover, and only then should disposal (or storage) in landfill be considered.

Data on waste arisings is collected in a range of categories. The activities of the water industry contribute to construction, demolition and excavation waste (CDEW), through construction of new infrastructure. The water industry also contributes to several waste streams through the operation of facilities. Waste streams include commercial and industrial waste (C&I) (statistics include waste arisings from the power and utilities sector, which includes water supply and sewage removal), and also hazardous wastes. Table C5 shows waste according to waste type in the UK in 2012 (and by region in 2006 in Table C4). Tables C6 to C7 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.

²⁴ Defra (2012) The UK Climate Change Risk Assessment 2012 Evidence Report.

²⁵ Defra (2015) Local authority collected waste statistics – local authority data.

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

²⁶ Defra (2011), Government Review of Waste Policy in England 2011

Table C4 Waste arising by Sector, 2014²⁷

Year	Commercial	Industrial	Total C&I
2010	20	13.9	33.9
2012	16.9	15.9	32.8
2014	15.1	12.6	27.7

Table C5 Waste generation split by NACE²⁸ economic activity in England ('000 tonnes)²⁹

Waste Figures	2012 ('000 tonnes)
Commercial and Industrial (C&I)	38,976
Construction	85,240
Household	22,744
Other	16,291
Total	163,252

Table C6 Waste from households in England – 2010-14

England	Waste arisings ('000 tonnes)	Recycled ('000 tonnes)	Recycling rate (%)
2010	22,131	9,112	41.2%
2011	22,170	9,596	43.3%
2012	21,956	9,684	44.1%
2013	21,564	9,523	44.2%
2014	22,355	10,025	44.8%

Table C7 Municipal waste and Biodegradable Municipal Waste (BMW) to landfill in England 2010-2013³⁰

England	Municipal waste to Landfill ('000 tonnes)	Of which BMW to Landfill ('000 tonnes)	BMW to Landfill as % of 1995 target baseline
2010	20,298	10,339	36%
2011	18,421	9,360	32%
2012	16,187	8,129	28%
2013	14,780	7,347	25%

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. In the short term, Southern Water has set a leakage target of 86 million litres a day by 2020, equating to a reduction of almost two million litres a day, and to reduce leakage to 75 million litres each day by 2040.

²⁷ Defra (2016) UK Statistics on Waste: <https://www.gov.uk/government/statistics/uk-waste-data>

²⁸ Statistical classification of economic activities developed by the European Community –Nomenclature of Economic Activities (NACE)

²⁹ Defra (2015) UK Statistics on Waste:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/487916/UK_Statistics_on_Waste_statistical_notice_15_12_2015_update_f2.pdf

³⁰ Defra (2015)

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/487916/UK_Statistics_on_Waste_statistical_notice_15_12_2015_update_f2.pdf

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 129.8 l/h/day reported for the year 2015/16. During AMP5 Southern Water's Universal Metering Programme (UMP), increased the number of metered households up to 88%.

There is the potential for increase in operational waste from the water sector as regional population increases and standards of treatment are increased through regulatory requirements. With the Waste Strategy for England, diminishing landfill capacity and a fast-growing waste recycling and recovery industry, the proportion of waste sent to recovery rather than landfill is set to continue to increase in the future. One of the Waste Framework Directive targets is for at least 70% of construction and demolition waste to go to recovery by 2020.

The Government's first National Infrastructure Plan³¹ (NIP) (2010) included visions to manage natural capital sustainably; treat water and waste in ways that sustain the environment and enable the economy to prosper; ensure a supply of water that meets the needs of households, businesses and the environment now and in the future and deals with waste in accordance with the waste hierarchy. The plan was updated in 2014, setting out progress to date whilst including detailed delivery plans to 2020 in key economic sectors³².

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 reference³³. 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

³¹ HM Treasury Infrastructure UK (2010) National Infrastructure Plan

³² HM Treasury (2014) National Infrastructure Plan 2014:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/381884/2902895_NationalInfrastructurePlan2014_acc.pdf

³³ Defra (2005) Water Framework Directive: Summary report of the characterisation, impacts and economics analyses required by Article 5, South East River Basin District

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.

Surface water features for 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). 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 11 coastal water bodies as shown in Figure C5.

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.

Aquifers and geological features for 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).

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 (see Appendix - Table C8). In terms of the percentage of water bodies with 'good' or better ecological status in the study area, lakes were 29% (Appendix - Table C9) and transitional water were 28% (Appendix - Table C10).

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 Appendix - Table C11). The main reason for poor quantitative status is that abstraction levels, mainly for public water supply, exceed the rate at which aquifers recharge³⁴.

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 environment³⁵. 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 City of Brighton & Hove flood risk area contains 283,690 people,

³⁴ Environment Agency (2015), South East River Basin District River Basin Management Plan

³⁵ 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

of which 3,899 are at high risk³⁶ of flooding. The Medway flood risk area contains 234,260 people, of which 6,639 are at high risk 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. In 2008-2009, the Environment Agency spent approximately £427 million on building, improving and keeping flood defences such as managed river channels, walls and raised embankments, flood barriers and pumps in good condition, which reduced the risk of flooding to over 176,000 households across England. The Government further recognised the importance of investing in flood risk and coastal management and committed to increase public spending on it from £600 million in 2007-2008 to £800 million in 2010-2011. 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)³⁷ 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 NPPF³⁸ states that inappropriate development in areas at risk of flooding (in Flood Zone 1³⁹, Flood Zone 2⁴⁰, Flood Zone 3a⁴¹ 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 NPPF⁴².

Over the next 30 years, there will be an even higher demand for water due to increases in population, housing growth and economic development. The Environment Agency Water Strategy Regional

³⁶ High risk means there is a chance of flooding if greater than 1 in 30 (3.3%)

³⁷ 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>

³⁸ 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

³⁹ Low probability of river or sea flooding (<0.1%) which has critical drainage problems

⁴⁰ Medium probability of river (1%-0.1%) or sea flooding (0.5%-0.1%)

⁴¹ High probability of river (>1%) or sea flooding (>0.5%)

⁴² Communities and Local Government (2012) Technical guidance to the National Policy Planning Framework

Action Plan for the Southern Region⁴³ used future scenarios to look at future pressures on water resources. The scenarios consider a range of responses by Government, regulators, water companies, abstractors and individuals to the way that water is used and managed. They are not forecasts, but show a range of possible demands in the future. Under the worst case scenario, a further 500 million litres/day may potentially be necessary by 2050 to meet the additional needs of the public, industry and agriculture. By 2050, climate change could reduce river flow by 10 to 15% on an annual average basis, and could reduce summer river flows by 50 to 80%. The action plan identified five key priorities which include:

- Driving water efficiency
- Protecting the water environment
- Greater integration between policy, planning and operations of water resources and water quality
- 'Design standards' for public water supply and the related risk to the environment and
- Water industry progress

The UK Climate Change Risk Assessment (CCRA) 2012 Evidence Report⁴⁴ draws together and interprets the evidence gathered by CCRA regarding current and future threats and opportunities for the UK posed by the impacts of climate change up until 2100. Findings of the assessment include:

- Increasing pressure on the UK's water resources due to changes in hydrological conditions, population growth and regulatory requirements to maintain good ecological status. Major supply-demand deficits were identified for five river basin regions including the Thames river basin district.
- Increases in water demand for irrigation of crops.
- Lower summer rivers flows across the UK due to warming and drying conditions.

An increase in precipitation in winter months due to a combination of greater depths and more frequent heavy rainfall events - suggesting larger volumes of runoff with potential negative impacts on flood risk and sewer overflows in urban environments.

Flash-flooding associated releases from combined sewer overflows (CSO) could in turn increase associated illnesses at the coast due to the varying occurrence of microbial pathogens in the marine environment.

Table C8 Ecological 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

⁴³ Environment Agency (2009) Water Resources Strategy Regional Action Plan for Southern Region

⁴⁴ Defra (2012) The UK Climate Change Risk Assessment 2012 Evidence Report

Table C9 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 C10 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

Table C11 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

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 level⁴⁵. 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 England⁴⁶ 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 environment⁴⁷. 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 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

⁴⁵ <http://jncc.defra.gov.uk/page-2947>

⁴⁶ Defra (2009), Safeguarding our soils – A Strategy for England

⁴⁷ Defra (2011) Water for Life - Water White Paper

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 area which have declared an AQMA within their boundaries are illustrated in Figure C8. There are 120 AQMAs in total within the study area. The majority of the AQMAs have been declared because of emissions from road transport.

This latest air quality strategy⁴⁸ does not remove any of the objectives set out in the previous strategy or its addendum, apart from replacing the provisional 2010 PM₁₀ objective with the exposure reduction approach and a new ozone (O₃) objective to protect ecosystems, in line with the EU target value set out in the Third Daughter Directive.

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 (CO₂). National and regional CO₂ emissions totals are provided in Table C12 and are apportioned to their source categories in Table C13.

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. Between 2015 and 2016, 267 kilotons of carbon dioxide and other greenhouse gases were produced by Southern Water, and over 17% of its total energy use is from renewable sources⁴⁹. 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 C14.

Drought options could influence CO₂ 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) 2012 Evidence Report⁵⁰ draws together and interprets the evidence gathered by CCRA regarding current and future threats and opportunities for

⁴⁸ Defra (2007), The Air Quality Strategy for England, Scotland and Wales

⁴⁹ Southern Water (2013) Five-year Business Plan 2015-2020

⁵⁰ Defra (2012) The UK Climate Change Risk Assessment 2012 Evidence Report

the UK posed by the impacts of climate change up until 2100. Overall, the findings of the CCRA indicate that the greatest need for early adaptation action (i.e. within the next 5 years) is in the following areas:

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

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)⁵¹. Objectives are being achieved for many air pollutants (lead, benzene, 1,3-butadiene and carbon monoxide (CO)). However, measurements show that long-term reducing trends for NO₂ and PM₁₀ are flattening or even reversing at a number of locations, despite current policy measures. Projections suggest with a high degree of certainty that objectives for PM₁₀, NO₂ and O₃ will not be achieved by 2020⁵².

The 2009 UK Climate Projections (UKCP09 – 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.

Table C12 Carbon dioxide emissions by area (2013)

Area	Annual CO ₂ Emissions / million tonnes	Annual CO ₂ Emissions (% of UK total)
South East	55.8	12.5%
South West	34.5	7.7%
East of England	40.0	9%
Greater London	41.2	9.2%
UK	445.9	100%

Source: DECC (2015) Local Authority Carbon Dioxide Emissions Estimates 2013: Statistical Release

⁵¹ DECC (2015) Updated energy and emissions projections 2015

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/501292/eepReport2015_160205.pdf

⁵² Defra (2007), The Air Quality Strategy for England, Scotland and Wales

Table C13 Percentage contribution to carbon dioxide emissions by sector (2013)

Area	Percentage Contribution by Source Sector			
	Industry & Commercial % (millions tonnes)	Domestic % (millions tonnes)	Road Transport % (millions tonnes)	Land Use Change % (millions tonnes)
South East	9.4% (18.6)	13.8% (18.4)	15.5% (18.9)	-0.1
South West	6% (11.9)	8.1% (10.8)	9.2% (11.2)	0.5
East of England	7% (13.9)	9.2% (12.3)	10.8% (13.2)	0.6
Greater London	9.3% (18.3)	11.4% (15.2)	6.2% (7.6)	0.0
UK	44.2% (196.9)	29.9% (133.3)	27.3% (121.8)	0.38% (-6.0)

Table C14 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.

Archaeology and Cultural Heritage

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.

Heritage designations for the study area are shown in Figure C9. The study area includes an internationally recognised World Heritage Site⁵³ (Canterbury Cathedral).

Nationally important archaeological sites are statutorily protected as Scheduled Monuments (SMs)⁵⁴. There are currently around 19,850 entries in the Schedule for the UK⁵⁵. There are approximately 2,691 SMs located within the study area. Registered Parks and Gardens also make up part of the UK's cultural heritage of national importance (299 in the study area). An overview of all cultural heritage sites in the study area is provided in Table C15.

Table C15 Heritage assets in the study area

Asset	Study Area
World Heritage Site	1
Scheduled Monuments	2,691
Listed Buildings	48,688
Heritage Coasts	5
Registered Historic Parks and Gardens	299
Registered Historic Battlefields	5
Protected Historic Wrecks	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. There are over 8,000 conservation areas in England. 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. There were 5,534 designated assets on the Heritage at Risk (HAR) register in 2015. 604 were removed from the Register since 2014, and 327 added. One third of sites on the 2010 Register have now been removed from the Register⁵⁶.

For other types of heritage assets, the long-term trends are not yet firmly established but a very small reduction in the number of sites on the Register between 2009 and 2010 has been reported. The source of risk to SMs resulting from water abstraction or dewatering is 1.71% nationally⁵⁴. However, other assets such as those composed of organic material and preserved in waterlogged or anaerobic conditions are proportionately more at risk (e.g. paleoenvironmental deposits).

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.

⁵³ 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

⁵⁴ Nationally important archaeological sites designated under the Ancient Monuments and Archaeological Areas Act, 1979, www.culture.gov.uk/historic_environment/scheduled_ancient_monuments/

⁵⁵ English Heritage (2015) Heritage counts 2015

⁵⁶ English Heritage (2015) Heritage counts 2015

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 2012 to replace the Planning Policy Statements. The NPPF aimed to make the planning system less complex and more accessible, and changed the emphasis on planning to have a presumption in favour of development. However, core planning principles include those aiming to protect heritage assets, including “*conserve heritage assets in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life of this and future generations*”⁵⁷.

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 change⁵⁸.

Landscape and Visual Amenity

Baseline

The landscape character network⁵⁹ 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 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

⁵⁷ CLG (2012) National Planning Policy Framework, Communities and Local Government.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf

⁵⁸ English Heritage (2010) Climate Change and the Historic Environment

⁵⁹ www.landscapecharacter.org.uk, accessed 14th July 2006

landscape.’ There are eight AONB within or partially within the study area, these are listed below and summarised in Table C16.

- 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.

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 C18 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 mines⁶⁰.

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.

⁶⁰ CPRE tranquillity mapping for England: <http://www.cpre.org.uk/what-we-do/countryside/tranquil-places>

Table C16 Areas of Outstanding Natural Beauty within the Southern Water Study Area

Name of Site	Key Characteristics
Kent Downs	<p>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.</p> <p>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.</p> <p>The AONB is flanked by the urban areas of Ashford, Maidstone and Medway towns.</p> <p>The North Downs Way National Trail traverses the back of the escarpment.</p>
North Wessex Downs	<p>Includes the uplands of Marlborough, Berkshire and North Hampshire Downs.</p> <p>Richly farmed landscapes including Pewsey Meadows.</p> <p>Includes the Neolithic stone circle at Avebury and other important archaeological sites, as well as the White Horse of Uffington.</p> <p>Recreation resource – at Avebury, also Ridgeway National Trail and Kennet and Avon Canal.</p>
Surrey Hills	<p>Predominately made from chalk landscapes, open unimproved heath, deciduous woodland.</p> <p>Recreation resource – Box Hill and Devil’s Punch Bowl, Greensand Way and North Downs National Trail, and ‘Gateway to the South Downs’</p> <p>The urban areas of the area are predominately commuter towns, with transport links to Portsmouth and London</p>
Isle of Wight	<p>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.</p> <p>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.</p> <p>Four fifths of the island are rural farmland, which is typically heavily weighted to the grazing of sheep and cows.</p> <p>The island is a popular tourist destination, and the Isle of Wight coastal footpath and other trails run through much of the AONB.</p>
Chichester Harbour	<p>This AONB is composed of a series of tidal inlets that back onto the South Downs.</p> <p>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.</p> <p>The village of Selsey boasts some fossil hunting locations. Other leisure activities in the area are those typically associated with the seaside.</p>
High Weald	<p>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.</p> <p>The area is traversed by the valleys of the Rother, the Brede and the Tillingham rivers.</p>

Name of Site	Key Characteristics
	<p>The High Weald is home to many medieval and historically important landscapes.</p> <p>The area depends heavily upon agriculture and forestry, though several commuter towns do exist within its bounds.</p>
<p>Cranborne Chase and West Wiltshire Downs</p>	<p>Cranborne Chase is a chalky landscape with both rolling topography and steeply cut valleys.</p> <p>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.</p> <p>The AONB is home to a rich cultural history including C18 and C19 stately homes, ancient monuments and prehistoric archaeological sites.</p> <p>This AONB has a distinct lack of urbanisation, with the main industries being agriculture and forestry.</p>
<p>Dorset</p>	<p>The Dorset AONB is made up of inland ridges and valleys, and chalky ridge, limestone plateaus and sand heathland near the coast</p> <p>The Dorset coast is famous for its limestone and sandstone, geology that has formed famous landscapes of Durdle Door, Lulworth Cove and Chesil beach.</p> <p>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.</p> <p>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.</p> <p>The area has a strong tourism industry with several million visitors a year, but the main industries are agriculture and mineral related.</p>

Table C17 National Parks within the Southern Water Study Area

Name of National Park	Key Characteristics
<p>New Forest</p>	<p>The New Forest National Park 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.</p>
<p>South Downs</p>	<p>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.</p>

Table C18 Natural England National Character Areas (NCAs) within the Southern Water Study Area

National Character Area Name	Key Characteristics
Chilterns	<p>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.</p> <p>River Thames breaches escarpment to the south at Goring Gap, flowing past riverside towns such as Henley.</p> <p>The surrounding countryside is an area utilised for agriculture interspersed with woodland and hedged boundaries.</p> <p>Parts of Chilterns area furthest from London are recognised as special and attractive, falling within the Chilterns AONB.</p> <p>Major urban fringe and growth areas such as Luton and Hemel Hempstead are located within the Chilterns NCA, although outside of these AONBs.</p>
North Kent Plain	<p>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.</p> <p>Ancient woodland surrounds Blean, with additional woodland further west.</p> <p>Despite this, the landscape is mostly open and expansive, leading to the area being called as the “Garden of England”.</p>
North Downs	<p>Forming a chain of chalk hills, the North Downs NCA extends from Hogs Back in Surrey to the famous White Cliffs of Dover.</p> <p>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.</p> <p>The beauty of the area is reflected by its location within the Kent Downs and Surrey Hills AONB.</p>
Thames Basin Lowlands	<p>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.</p> <p>Overall the landscape is largely flat, with small sections of gently undulating land.</p> <p>The underlying geology consists mostly of London Clay, with small outcrops of Bracklesham and Barton Group sand, silt and clay between Esher and Cobham.</p> <p>Part of the North Downs Chalk bedrock, fringed with Thanet Formation and Lambeth Group sediments, underlies Croydon and Sutton.</p>
High Weald	<p>High Weald NCA is covered by ancient countryside and cited as one of the best surviving medieval landscapes in northern Europe.</p> <p>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.</p> <p>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.</p>
Low Weald	<p>A broad area of low lying clay which wraps around the northern, western and southern edges of the High Weald.</p> <p>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.</p>

National Character Area Name	Key Characteristics
	<p>The landscape is predominantly covered by densely wooded areas with a large amount of ancient woodland.</p> <p>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.</p>
Wealden Greensand	<p>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.</p> <p>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.</p>
Thames Valley	<p>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.</p> <p>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.</p> <p>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.</p>
Berkshire and Marlborough Downs	<p>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.</p> <p>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.</p>
Salisbury Plain and West Wiltshire Downs	<p>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.</p> <p>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</p> <p>The plain is predominantly covered by its chalk grassland, one of the largest remaining areas of calcareous grassland in north western Europe</p> <p>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</p>
Greater Thames Estuary	<p>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.</p> <p>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</p>

National Character Area Name	Key Characteristics
	<p>populated sections of the English coast and is vastly different to the densely populated urban areas towards London.</p> <p>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.</p>
Hampshire Downs	<p>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.</p> <p>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 watermeadows, peat soils, mires and fens of their flood plains, are the most important habitats of the area.</p> <p>The valleys are home to the main settlements, the local road system and important economic activities such as watercress growing and fly fishing.</p>
Isle of Wight	<p>The Isle of Wight is a 380 km² 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.</p> <p>The island is scientifically very important. Almost half of the island falls into an AONB, there are 41 SSSI and 395 SINC, several dark sky observation areas and Special Protection Areas, home to wetland birds, rare invertebrates and rare plants.</p> <p>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</p> <p>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.</p>
New Forest	<p>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.</p> <p>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 Natura 200 habitats.</p> <p>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.</p> <p>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.</p>

National Character Area Name	Key Characteristics
	<p>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.</p>
<p>Penvensey Levels</p>	<p>This predominately rural NCA is a low-lying area is situated in East Sussex between Eastbourne and Bexhill.</p> <p>Over a third of the area is a SSSI and the entire area is a wetland of national and international conservation importance.</p> <p>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.</p> <p>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.</p> <p>The busy Victorian seafront of Eastbourne is the main settlement, attracting over 5 million visitors each year.</p>
<p>Romney Marshes</p>	<p>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.</p> <p>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</p>
<p>South Coast Plain</p>	<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>
<p>The South Downs</p>	<p>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.</p> <p>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.</p> <p>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 aquifer is often under stress as it supplies Brighton and surrounding areas.</p> <p>The coast of the South Downs often hosts a cliffy landscape, and a small portion of the NCA is recognised as heritage coast.</p>

National Character Area Name	Key Characteristics
South Hampshire Lowlands	<p>The South Hampshire Lowlands NCA stretches from Hampshire and the South Downs to Southampton Water.</p> <p>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.</p> <p>The mudflat and salt marsh wetlands of the area are home to breeding and overwintering waterfowl and waders. Three Natura 2000 designations cover parts of the area. The delicate and unique river areas of this NCA are home to otters.</p> <p>The geology of the South Hampshire Lowlands is mainly consisting of open marine, estuarine and freshwater Tertiary deposits.</p>
Thames Basin Heaths	<p>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.</p> <p>The NCA housing the large urban conurbations of Bracknell and Camberley and the large M25 and M3 road network.</p> <p>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.</p> <p>A quarter of the NCA is woodland, with the majority planted on former heathland, commonly comprised of rhododendron and conifers.</p> <p>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.</p> <p>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.</p>
Blackmoor Vale and the Vale of Wardour	<p>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.</p> <p>The fertile area of the terraces is the site of several stately homes and their estates of parks and woodland.</p> <p>Blackmore vale has many veteran hedgerow trees and hedgefields which often become waterlogged due to the pattern of overlapping rivers and streams.</p> <p>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.</p> <p>Disused quarries show the Jurassic and Cretaceous geology of the area.</p>
Dorset Downs and Cranbourne Chase	<p>Spans within the counties of Dorset, Wiltshire and Hampshire.</p> <p>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.</p> <p>The NCA is also blanketed by pockets of woodland, with the entire area overlaying Cretaceous chalk.</p> <p>The area is archeologically important and shows evidence of Mesolithic activity (8000 years ago).</p>

National Character Area Name	Key Characteristics
	15km long transect of the South West Coast Path National Trail runs through this NCA.
Dorset Heaths	<p>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.</p> <p>Major land uses include agriculture, military training and open cast mineral working.</p> <p>Tourism is a major industry within the area, attracting visitors to archetypical sandy beaches.</p>
Inner London	<p>The Inner London NCA lies at the centre of the Thames Basin and is characterised by a series of flood plain terraces.</p> <p>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.</p> <p>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.</p> <p>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.</p>

Environmental Baseline Figures

See separate PDF files on website:

- 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 Heritage
- C10 Landscape