Bristol Water Drought Plan 2018

SEA Environmental Report

Appendices

Appendix A: Figures of key interest features

Appendix A is presented separately and consists of the following maps:

A.1. SSSI, SPA, SAC, Ramsar and Ancient Woodland designations.

A.2. AONB, NNR, LNR and National Trails.

A.3. WFD waterbody classifications.

A.4. WFD Groundwater Quantitative status.

A.5. Agricultural Land Classification.

A.6. Air Quality Management Areas.

A.7. World Heritage Sites, Scheduled Monuments and Registered Parks and Gardens.

A.8. Areas of Outstanding Natural Beauty and National Character Areas.

Appendix B: Drought Permits – Hydrological Zone of Influence

Appendix B provides the hydrological zone of influence for the Blagdon, Chew and Cheddar Reservoir drought permit options as presented within the Environmental Monitoring Report (EMP) undertaken in 2007. The figures have subsequently been updated in 2017.

Figure B1: Blagdon Reservoir drought permit zone of influence

[*This figure has been redacted for security reasons*]

Figure B2: Chew Reservoir drought permit zone of influence

[This figure has been redacted for security reasons]

Figure B3: Cheddar Reservoir drought permit zone of influence

[*This figure has been redacted for security reasons*]

Appendix C: Consultee responses to the SEA Scoping Report

Appendix C is the consultee responses to the SEA scoping report and subsequent updates to the assessment.

Table C1: Environment Agency consultee response

Question	Consultee Response	Comment and Amendments
Q1. Do you have any comments on the structure and purpose of the Scoping Report? If so, please provide details.	Purpose is clear, but it would have been useful if the diagrams (B set) were embedded in the document.	The maps are 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 stakeholders.
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.	The list of options in Tables 1.1 and 1.2 is also very high level. It is not clear where existing sources of water are abstracted and treated and where potential sources of water can be utilised in a drought. The SEA may need to cover a wider area if additional sources are identified on the boundary perimeter or outside the boundary.	The drought plan does not affect most of the company's water sources and the SEA is focused on assessing the effect of the measures contained in the drought plan, rather than the operation of all water sources. The SEA Scoping Report covers the geographical area affected by the Drought Plan and there are no water sources or environments affected beyond the boundary presented in the Scoping Report. The Environmental Report provides more specific details as to the measures included in the plan.
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.	It is not clear how close or whether any of BW's existing practices impact upon the designated sites listed in 3.2.1. Table C1 on p28 does not refer you to the supporting information, so needs amending to Table B1. Table B1 should also list all Ramsar, SSSI, NNR's and LNR's in the area. From a WFD perspective, it's also not clear how extensive INNS are within the boundary and if cross catchment pumping could pose a risk to spreading INNS.	References in this Environmental Report reflect the relevant supporting data appendices. Table B1 (now Table E1, in Appendix E of this Environmental Report) updated to include other environmental designations. Figures updated in this Environmental Report (Appendix A) to include the location of the Drought Plan measures to give context to their location in relation to designated sites. The significance of effect assessments (Appendix F of this

	There seems to be a lack of quantitative evidence with the baseline conditions. For example, in 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 the SW? 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.	Environmental Report) provide details of any effects on any of these designated sites. The risk of spreading INNS is assessed for each drought measure separately and reported in Appendix F of this Environmental Report. Where information is known regarding the presence of INNS, this has been provided in the significance of effect assessments. A precautionary approach has been followed where data gaps exist regarding the presence of INNS. No new raw water cross-catchment pumping is proposed as part of the Bristol Water Drought Plan, hence this is not a risk. 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. In many cases, specific quantitative data are not readily available and/or up-to-date for the geographical area likely to be affected. Where further quantitative baseline data have been acquired, these have been added to the environmental baseline section of this Environmental Report. The baseline information helps provide the environmental context against which the assessment of the plan will be carried out; however, further, more specific data are used within this Environmental Report for assessing the specific local receptors and environments that are likely to be affected by the measures contained within the Drought Plan.
Q4. Are the plans and programmes that have been reviewed appropriate (see Section 2)? If not, please explain why.	It does not include any policies or strategic plans of the Canal & River Trust, which provide water to BW. In addition, there were no such plans reviewed from any third sector organisations such as Wildlife Trusts and RSPB, who would both have in interest where LNR's and SAC/SPA/RAMSAR sites may be affected.	The proposed drought measures in the Drought Plan would not affect the Canal & River Trust's abstractions and nor would the Drought Plan alter the amounts of water provided by the Canal & River Trust to Bristol Water. 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 programmes and plans in this Environmental Report, for example plans of local Wildlife Trusts, including Avon Wildlife Trust who manage the reserve at Chew Valley Lakes. The RSPB does not have any tenancy or reserves at any of the three reservoirs where drought permit measures are proposed in the Drought Plan. 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 and Plans in this Environmental Report (Appendix D).
Q5. Are you aware of other plans or programmes that should be considered (see Section 2)? If so, please provide references.	Not specifically, but the organisations mentioned in Q4 do have strategic plans for improving the environment.	As explained above for Q4, we have reviewed relevant strategic plans and updated the programmes and plans review accordingly (Appendix D of this Environmental Report).
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.	Common Standards Monitoring Guidance for SPA, SAC and Ramsar sites.	We have considered the Commons Standards Monitoring Guidance in carrying out the SEA and the accompanying HRA where relevant.
Q7. Taking account of the SEA Regulations and associated guidance, are the environmental issues identified for Bristol Water Drought Plan appropriate (see Section 3)? If not, please explain why and what changes you consider are required.	Yes, they seem appropriate for the plans reviewed. There may be further local issues/opportunities which arise once the third sector plans/programmes are reviewed.	Noted – please see comments in response to Q4 above.
Q8. Taking account of the SEA Regulations and associated guidance, do the environmental objectives encompass all the necessary issues	The scoping report does not acknowledge that in some scenarios, the Common Standard Monitoring Guidance will take precedent over WFD for	Acknowledged. In carrying out the significance of effects of assessment in this Environmental Report (and accompanying HRA Report), the Common Standard Monitoring Guidance has been considered in

(see Section 4)? If not, please explain why and what changes you consider are required.	designated sites. This needs to be reflected in the text.	relation to assessing potential effects on European designated sites and SSSIs.
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.	Yes 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. In the last paragraph on page 62, section 4.2.2. It is also suggested that BW ask the Canal & River Trust to comment on the proposals, given that they provide water via the Gloucester and Sharpness Canal.	A key for the colour coding is provided within Section 5. The drought management measures within the Drought Plan do not affect the Gloucester and Sharpness Canal abstraction and water supplies. The Canal & River Trust will be consulted on the draft Drought Plan and the accompanying SEA and any views they may wish to make will be taken into account in finalising the Drought Plan.
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.	No comments.	No action required.
Q11. Do you consider that the overall scope and approach proposed in this Scoping Report will enable Bristol Water to robustly consider environmental effects in developing its Drought Plan? If not, please explain why and what changes you consider are required.	Please incorporate the comments made within this response. In addition to the above we also have the following comments: a. Please make sure it is clear how the SEA has been used to 'shape' the drought plan. b. Please show phasing of HRA, SEA, WFD in the process diagram given in Figure 1.2. c. Table 1.2 demand side options does not include the use of media to educate the public and encourage them to use less water. d. In 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 bring the waterbody back up to the 2009 standard.	a. This is included within Bristol Water's Drought Plan and this Environmental Report. b. We have explained in this Environmental Report how HRA and WFD have been used to inform the SEA. c. Table 1.1 in this Environmental Report includes this measure: the table details all the demand management measures contained in the Drought Plan, including use of the media/publicity to promote water conservation. d. Added within the 'Water Section' of the SEA – this has been taken into account as part of the assessment against the WFD SEA objective in this Environmental Report. e. Text amended. f. Appendix naming updated.

	e. Section 5.1 refers to section 1.7, but no section 1.7. Please amend text. f. Appendix C, objectives and context – Appendix A should be referenced, not appendix B. g. The reinstatement of the Honey Hurst source and the changes to the compensation requirement needs to be clearer. h. Bristol Water going forward needs to ensure it has good baseline data.	g. The Drought Plan provides more information on this option, and the details are clearly summarised in this Environmental Report. h. Development of Environmental Assessment Reports are recommended in Section 7 which would include targeted monitoring and/or acquisition of further baseline data of specific relevance to the Drought Plan.

Table C2: Historic England

Comment	Comment and Amendments
Pg 25 add. **The World Heritage Convention (UNESCO) 1972** – a global instrument for the protection of cultural and natural heritage. Signatories commit themselves to refraining from 'any deliberate measures which might damage, directly or indirectly, the cultural and natural heritage' of their World Heritage Sites.	Added to Archaeology and Cultural Heritage section in Table 2.1 and Appendix D of this Environmental Report.
Pg 25 add. **City of Bath World Heritage Site Management Plan (2016-2022)** https://www.bathworldheritage.org.uk/management-plan. A main aim of the plan is to ensure that the Outstanding Universal Value of the Site and its setting is understood, protected and sustained.	Added to Archaeology and Cultural Heritage section in Table 2.1 and Appendix D of this Environmental Report.
Please update reference to **English Heritage (2010), Heritage at Risk**. Please note that the Register is updated annually and managed by Historic England (formerly known as English Heritage). https://historicengland.org.uk/advice/heritage-at-risk/	Updated in Section 2.2 of this Environmental Report.
Section 3.8. It may be helpful to add. Bath – it should be noted that Bath's hot springs are the only ones in Britain. The Romans built a bathing complex and temple dedicated to Sulis Minerva in 65-75 AD. The hot springs have played a central role in every stage of the city's development, creating a unique social history and continuing culture. There form part of the World Heritage Site's Outstanding Universal Value. A quarter of a million gallons of water every day are forced up through rock strata along the Pennyquick Fault. There are three main springs – the King's Spring (46˚c), the Hetling Spring (48˚c) and the Cross Bath Spring (41˚c). The County of Avon Act (1982) is an Act of Parliament giving Bath and North East Somerset Council powers to take reasonable measures to protect the water supply of the hot springs. Under the provisions of this Act, there are three concentric zones within the city where excavation deeper than 5m requires the prior consent of the Council. Beyond these central areas the critical depth extends to 15m, with an extension beyond the city to Batheaston at 50m.Whilsit outside the Plan area the Drought Plan will need to have due regard to this matter and consider the impact of any actions on the source of the Springs.	The Drought Plan has no direct interaction with the city of Bath or its heritage assets/setting; therefore no effect on the Bath hot springs is expected as a result of Bristol Water's Drought Plan.

The role of the SEA in highlighting the potential impact of any necessary developments or management measures on heritage assets, and potential mitigation measures is extremely valuable.	The SEA considers the impact on heritage assets via the screening objectives in the 'Archaeology and cultural heritage' topic.
The key cultural heritage aims outlined in the scoping document, to 'conserve or enhance sites of archaeological importance and cultural heritage interest, and their setting, particularly those which are sensitive to the water environment' and to 'protect water-dependent heritage sites during drought conditions', are laudable. We are also pleased to see that cultural heritage has been included in consideration of soil, geology and land use	Noted. No action required.
It appears none of the drought management measures are likely to involve the construction of permanent physical infrastructure or development to meet the objectives of the plan which limits the potential risk to the historic environment.	Honeyhurst Well abstraction would require a new pipeline between the abstraction point to Cheddar Water Treatment Works. This pipeline would remain as a permanent asset. The SEA has highlighted that the route of the pipeline will not affect the historic environment.
The potential impact on heritage assets which are not designated is a relevant consideration. This would include the majority of palaeoenvironmental assets in the south west. Local HER's will hold this information. The Somerset Levels has produced one of the most comprehensive palaeoenvironmental archives in the UK; it is possible that considering past climate change and water levels will inform our understanding of future climate change. The importance of this resource and heritage asset cannot be understated.	The impact on palaeoenvironmental assets is considered in the 'Soil, geology and land use' topic. Any effects are assessed in the SEA against the baseline of severe environmental drought. Impacts on other non-designated heritage assets are assessed in relation to specific Drought Plan measures under the "Archaeology and Cultural Heritage" topic.
The Heritage at Risk Register compiled by Historic England and referenced in the scoping report, does not only register built heritage at risk, but also archaeological sites at risk. Several of which are at risk due to the effects of dewatering, as discussed. It would be beneficial to consider potential impact of climate change and water management regimes on these nationally important monuments in more detail, in the context of the drought plan. In particular, careful consideration should be given to the potential for dewatering of significant and environmentally sensitive archaeological remains, through re-commissioning of unused sources or use of groundwater sources, for example.	Agree. The SEA is specifically focused on Bristol Water's drought permit options which could be implemented in a period of extreme drought. This impact is assessed against the baseline of severe environmental drought and does include consideration of the potential effects of dewatering or local lowering of the water table due to Drought Plan measures in assessing potential effect on heritage assets and archaeological sites (whether at risk or otherwise).
It may also be useful to consider cave systems on the Mendip hills, many contain important archaeological, paleontological and palaeoenvironmental remains; those which also contain active or seasonal streamways may be impacted by flooding events, climate change or groundwater reduction.	Natural drought may affect these features but no impact from Bristol Water's Drought Plan options are anticipated on these features. The Honeyhurst Well groundwater abstraction is already a licenced abstraction and is not located within the Mendip Hills cave system area.

We would encourage the involvement of local authority archaeologists and reference to the Historic Environment Record (HER) as part of the SEA and/or in relation to the draft document.	Bristol Water would be pleased to engage with local experts and use of HERs if the SEA identifies the potential for adverse effects.
On-going discussion and consultation throughout the SEA and update process would be welcome. In particular, engagement with the Options Workshop, engagement with the Environmental Report and with the Draft Plan, may be particularly beneficial.	Historic England will have an opportunity to respond to the draft Drought Plan and SEA Environmental Report. Bristol Water will be happy to discuss the findings in more detail with Historic England if this would be of assistance.

Table C3: Natural England

Question	Consultee Response	Comment and Amendments
Q1. Do you have any comments on the structure and purpose of the Scoping Report? If so, please provide details.	We consider that the scope of the SEA should, in principle, include review of the control curves that are used to trigger drought management activities. This should take into account the implementation of temporary restrictions on supply (e.g. use of hosepipe bans) as well proposed drought permits. Getting the correct balance between environmental protection and customer service would seem to be a necessary consideration of the drought plan review, and the derivation of the control curves is an area that Natural England is keen to explore going forward. This approach was advocated in our advice of the 31 January 2012 with regard to the existing Drought Plan. However, we recognise that this exercise needs to be informed by a thorough review of the environmental baselines and sensitivities of the reservoirs, and that a relevant and ongoing PR14 investigation is addressing the impact of drawdown of Blagdon Lake on the submerged plant communities present. Given this, we appreciate that Bristol Water is not in a position to critically evaluate the appropriateness of the reservoir control curves as part of this drought plan review. However, we do expect that the next drought plan review will consider this issue, informed by an Environment Report and the aforementioned PR14 investigation	Comment noted regarding the review of control curves in the next drought plan review as informed by the forthcoming update to the Water Resources Management Plan which effectively sets policy for levels of service for water use restrictions and drought permits, which in turn determines will be used to inform a review and update of the control curves required. The draft Water Resources Management Plan is currently expected to be issued for consultation in early 2018, and will include the company's updated position on levels of service and the need for any drought permits
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.	The area of assessment needs to be informed by the potential hydrological impacts of the proposed options. Whether the Assessment Area that has been mapped includes all such impacts is unclear at present. For each option the zone of potential hydrological impact needs to be characterized to an appropriate level of resolution. This will then provide the basis for deciding which sensitive receptors might be affected, and where more detailed assessment is required.	The zone of potential hydrological impact for each of the Drought Permit options (Chew, Blagdon and Cheddar Reservoirs) is discussed and presented in this Environmental Report, together with the potential environmental effects that may arise from their implementation. The zone of influence for the Honeyhurst and Rodney Stoke option is considered to have little to no adverse effect on the adjacent surface waterbody, which is the river Axe, but this would need to be

		confirmed through monitoring or modelling prior to implementation.
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.	Section 3 does identify the range of environmental designations and high-level considerations that need to be addressed in the assessment. However, it does not currently consider the objectives, sensitivities and current state of the designated nature conservation sites identified. Similarly the local objectives for Priority Habitats and Species and ancient woodlands are not described. Recognising that this could be a time consuming exercise to undertake, we propose that such detail is introduced into the assessment, if and when required, once the hydrological zones of impact are characterised. Designated nature conservation sites and their interest features can be interrogated by using www.natureonthemap.naturalengland.org.uk. Supplementary advice found in Favourable Condition Tables can be supplied by NE for those sites where this level of detailed assessment is required.	Comment noted. If the SEA (and associated HRA) identify potential adverse effects on designated sites these will be explored further in specific Environmental Assessment Reports (assuming the forthcoming Water Resources Management Plan confirms that these Drought Permit options are the preferred options for managing the effects of drought). Noted. This information has been used to inform the accompanying HRA screening
Q4. Are the plans and programmes that have been reviewed appropriate (see Section 2)? If not, please explain why.	No comment received.	
Q5. Are you aware of other plans or programmes that should be considered (see Section 2)? If so, please provide references.	No comment received.	
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.	No comment received.	

Q7. Taking account of the SEA Regulations and associated guidance, are the environmental issues identified for Bristol Water Drought Plan appropriate (see Section 3)? If not, please explain why and what changes you consider are required.	No comment received.	
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.	No comment received.	
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.	No comment received.	
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.	No comment received.	

Q11. Do you consider that the overall scope and approach proposed in this Scoping Report will enable Bristol Water to robustly consider environmental effects in developing its Drought Plan? If not, please explain why and what changes you consider are required.	No comment received.	i.

Appendix D: Review of Policy, Plans and Programmes

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
International	
The Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979)	
International convention which aims to ensure conservation of wild flora and fauna species and their habitats. Special attention is given to endangered and vulnerable species, including endangered and vulnerable migratory species specified in appendices. Enforced in European legislation through the Habitats Directive (92/43/EEC) and Birds Directive (79/409/EEC).	The impacts of the Drought Plan measures on internationally designated sites, species and important bird habitats must be considered as part of the SEA.
The Bonn Convention on the Conservation of Migratory Species of Wild Animals (1983)	
Aims to conserve terrestrial, marine and avian migratory species throughout their range. Enforced in European legislation through the Habitats Directive (92/43/EEC) and Birds Directive (79/409/EEC).	The impacts of the Drought Plan measures on important bird habitats (i.e. Ramsar sites and SPA designated sites) must be considered as part of the SEA.
The Paris Agreement (2016), Cancun Agreement (2011) and Kyoto Agreement (1997)	
The agreements represent key steps forward in capturing plans to reduce greenhouse gas emissions and to help developing nations protect themselves from climate impacts and build their own sustainable futures. It includes a shared vision to keep global temperature rise to below two degrees Celsius.	The SEA should consider the need for water companies to seek to promote a reduction in greenhouse gas emissions in carrying out its service activities.
The Convention for the Protection of the Architectural Heritage of Europe (Granada Convention)	
This sets the framework for the approach to conservation across Europe.	The SEA should take into account the need to conserve heritage.
The European Convention on the Protection of Archaeological Heritage (Valletta Convention)	
The Valletta Convention is one of a series of Conventions for the protection of the cultural heritage produced by the Council of Europe over the last fifty years.	The SEA should take into account the need to conserve heritage.
Council of Europe (2003) European Soils Charter	
Sets out common principles for protecting soils across the EU and will help.	The SEA should seek to take account of the need to protect the quality of the region's land, including soils, is protected or enhanced.
Council of Europe (2006), European Landscape Convention	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
International	
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.	The implementation of the Drought Plan may influence landscape or the enjoyment of landscapes in the Bristol Water SEA area and as such the SEA should consider the need to maintain or enhance the quality of the regions landscapes and the potential enjoyment of these landscapes.
The Environment Noise Directive (Directive 2002/49/EC)	
The END aims to —define a common approach intended to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to the exposure to environmental noise. It also aims to provide the basis for developing EU measures to reduce noise emitted by major sources, in particular road and rail vehicles and infrastructure, aircraft, outdoor and industrial equipment and mobile machinery.	The SEA assessment framework should include for the protection against excessive noise.
European Commission (2008), The 2008 ambient air quality directive (2008/50/EC)	
The 2008 ambient air quality directive (2008/50/EC) sets legally binding limits for concentrations in outdoor air of major air pollutants that impact public health such as particulate matter (PM10 and PM2.5) and nitrogen dioxide (NO2). As well as having direct effects, these pollutants can combine in the atmosphere to form ozone, a harmful air pollutant (and potent greenhouse gas) which can be transported great distances by weather systems.	The implementation of the Drought Plan may have some influence on air quality, either directly or indirectly through construction or operation activities. The SEA should take account of the need to ensure that the region's air quality is maintained or enhanced, and that emissions of air pollutants are kept to a minimum.
European Commission (2009), Promotion of the use of energy from renewable sources Directive (2009/28/EC)	
This promotes the use of energy from renewable sources.	The SEA should take account of the need to 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 take account of the need to protect and conserve important bird habitats.
European Commission, Floods Directive (2007/60/EC)	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
International	
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 take account of the need to ensure that flood risk in the region is not adversely affected by the implementation of the Drought Plan.
European Commission (2006), Fresh Water Fish Directive (2006/44/EC)	
The Directive seeks to protect those fresh water bodies identified by Member States as waters suitable for sustaining fish populations. For those waters, it sets physical and chemical water quality objectives for salmonid waters and cyprinid waters. The Directive is designed to protect and improve the quality of rivers and lakes to encourage healthy fish populations.	The SEA should take account of the need to promote the protection of river and lake water quality in order to maintain and develop suitable environments that will sustain fresh water fish populations.
European Commission (2006), 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 Bristol Water District and as such the SEA should take account of the need 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 Bristol Water District and as such the SEA should take account of the need to maintain or enhance the quality of habitats and biodiversity
European Commission (2004), 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 take account of the need 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	
This Directive establishes a framework for the protection of inland surface waters, transitional waters, coastal water and groundwater. It also encourages the sustainable use of water resources. Key objectives are general protection of the aquatic ecology, specific protection of unique and valuable habitats, protection of drinking water resources, and protection of bathing water.	The SEA should take account of the need to promote the protection and enhancement of all water resources.
European Commission (1998, 2015), Drinking Water Directive (1998/83/EC) amended 2015	
The objective of the Drinking Water Directive is to protect the health of the consumers in the European Union and to make sure the water is clean and of good quality. To make sure drinking water everywhere in the EU is healthy, clean and tasty, the Drinking Water Directive sets standards for the most common substances (parameters) that can be found in drinking water.	The SEA should take account of the need to meet the Directive's objectives to maintain water quality in the region to secure high standards of drinking water quality.
Directive 2006/118EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration	
This Directive establishes specific measures as provided for in Article 17(1) and (2) of Directive 2000/60/EC (Water Framework Directive) in order to prevent and control groundwater pollution. This Directive is designed to prevent and combat groundwater pollution.	The SEA should take account of the need to maintain, protect and improve water quality across the region.
European Commission Directive 2006/7/EC of the European Parliament and of the Council of 15 February 2006 concerning the management of bathing water quality and repealing Directive 76/160/EEC	
The revised Bathing Water Directive (BWD) of 2006 updated and simplified the rules of the previous BWD. States are required to monitor and assess the bathing water for at least two parameters of (faecal) bacteria. In addition, they must inform the public about bathing water quality and beach management, through bathing water profiles. These profiles contain information on the kind of pollution and sources that affect the quality of the bathing water and that are a risk to bathers' health (such as wastewater discharges).	The SEA should take account of the need to maintain, protect and improve water quality across the region
European Commission (1991), Urban Waste Water Treatment Directive (1991/271/EC)	
The Directive's objective is to protect the environment from the adverse effects of urban waste water discharges and discharges from certain industrial sectors and concerns the collection, treatment and discharge of domestic waste water, mixture of waste water and waste water from certain industrial sectors.	The SEA should take account of the need to maintain, protect and improve water quality across the region.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
International	
European Commission (1991), Nitrates Directive (91/676/EEC)	
This Directive aims to protect water quality across Europe by preventing nitrates from agricultural sources polluting ground and surface waters and by promoting the use of good farming practices.	The SEA should take account of the need to maintain, protect and improve water quality across the region.
European Commission (1992), Habitats Directive (1992/43/EC)	
The aim of the Directive is to promote the maintenance of biodiversity by requiring Member States to take measures to maintain or restore natural habitats and wild species listed on the Annexes to the Directive at a favourable conservation status, introducing robust protection for those habitats and species of European importance.	The impacts of the Drought Plan measures on internationally designated sites and species must be considered as part of the SEA.
European Commission (2013) The 7th Environmental Action Programme (EAP) to 2020 Living well, within the limits of our planet' (1386/2013/EU)	
The EAP aims to guide environment policy until 2020 with three key objectives: • 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.	The commitment to conserving biological diversity must be considered in any Drought Plan measures and the SEA should take account of the need to promote the protection and enhancement of biodiversity.
European Commission (2012), Blueprint to Safeguard Europe's Water Resources	
This strategy aims to ensure that enough good quality water is available to meet the needs of people, the economy and the environment. The strategy includes: • Improving implementation of current EU water policy; • Increasing the integration of water policy objectives into other relevant policy areas such as agriculture, fisheries, renewable energy, transport and the Cohesion and Structural Funds. • Filling the gaps of the current framework, particularly in relation to the tools needed to increase water efficiency.	The commitment to conserving biological diversity must be considered in any Drought Plan measures and the SEA should take account of the need to promote the protection and enhancement of biodiversity.
European Commission (2006), Thematic Strategy for Soil Protection	
The Thematic Strategy for Soil Protection consists of a Communication from the Commission to the other European Institutions, a proposal for a framework Directive (a European law), and an Impact Assessment.	The SEA assessment framework should take account of the need to protect soils.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
International	
European Commission (2005), Thematic Strategy on Air Pollution	
This strategy supplements current legislation. It sets out objectives for air pollution and proposes measures for achieving them by 2020.	The SEA should take account of the need to reduce air pollution.
Ramsar Convention: The Convention on Wetlands of International Importance (1971)	
The Convention on Wetlands (Ramsar, Iran, 1971) (the "Ramsar Convention") is an intergovernmental treaty that embodies the commitments of its member countries to maintain the ecological character of their Wetlands of International Importance and to plan for the "wise use", or sustainable use, of all of the wetlands in their territories.	The impacts of the Drought Plan measures on important wetland habitats must be considered as part of the SEA.
United Nations (1992), Convention on Biological Diversity (CBD)	
The main objectives are: • Conservation of biological diversity • Sustainable use of its components • Fair and equitable sharing of benefits arising from genetic resources	The commitment to conserving biological diversity must be considered in any Drought Plan measures and the SEA should take account of the need for protection and enhancement of biodiversity.
United Nations Economic Commission for Europe (1998), Aarhus Convention - Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters	
The Aarhus Convention grants the public rights regarding access to information, public participation and access to justice, in governmental decision-making processes on matters concerning the local, national and transboundary environment. It focuses on interactions between the public and public authorities. The Aarhus Convention has been ratified by the European Community, which has begun applying Aarhus-type principles in its legislation, notably the Water Framework Directive (Directive 2000/60/EC).	The Convention is designed to improve the way ordinary people engage with government and decision-makers on environmental matters. It helps to ensure that environmental information is easy to get hold of and easy to understand. The SEA should provide easily understood information to the public on the environmental implications of the Drought Plan and its constituent measures.
United Nations (2002), Commitments arising from the World Summit on Sustainable Development, Johannesburg	
The World Summit on Sustainable Development proposed broad-scale principles which should underlie sustainable development and growth. It included objectives such as: • Greater resource efficiency • Work on waste and producer responsibility • New technology development • Push on energy efficiency	These commitments are the highest level definitions of sustainable development. The Drought Plan should be influenced strongly by all of these themes and should seek to take its aims into account. The SEA should take account of the need to promote the achievement of the sustainable development objectives outlined in this plan.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
International	
• Integrated water management plans needed • Minimise significant adverse effects on human health and the environment from chemicals by 2020.	
The World Heritage Convention (UNESCO) 1972 – a global instrument for the protection of cultural and natural heritage.	
A global instrument for the protection of cultural and natural heritage. Signatories commit themselves to refraining from 'any deliberate measures which might damage, directly or indirectly, the cultural and natural heritage' of their World Heritage Sites. The city of Bath is the closest UNESCO designated site.	The Drought Plan and SEA should take account of the need to protect scheduled monuments and archaeological areas.

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 in 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 measures on species diversity must be considered as part of the SEA.
The Countryside and Rights of Way (CROW) Act, 2000	
The Act provides for increased public access to the countryside and strengthens protection for wildlife. The main provisions of the Act are as follows: • Extends the public's ability to enjoy the countryside whilst also providing safeguards for landowners and occupiers • Creates new statutory right of access to open country and registered common Land Use Consultants • Modernises Right of Way system • Gives greater protection to SSSIs • Provides better management arrangements for AONBs • Strengthens wildlife enforcement legislation.	The Drought Plan may have an effect on public access to the countryside. The SEA should include objectives that take into account public access, protection of SSSIs and the management of relevant landscape designations.
Defra (2012), National Policy Statement for Wastewater	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
A framework document for planning decisions on nationally significant wastewater infrastructure.	The Drought Plan and SEA should take into account these wastewater policies.
Defra and Welsh Government (2014), River Basin Planning Guidance	
Aims to give guidance on practical implementation of the Water Framework Directive (WFD). The river basin planning process involves setting environmental objectives for all groundwater and surface waters (including estuaries and coastal waters) within the river basin district, and devising programmes of measures to meet those objectives.	The Drought Plan should take into account the contents of this statutory guidance.
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 relevant continuing policies set out in this document.
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 findings 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 requirements of this statutory order.
DCLG (2012), National Planning Policy Framework	
Presumption in favour of sustainable development. Core planning principles include taking account of the development needs of an area; contribute to conserving and enhancing the environment; re-use of previously developed land; conserve heritage assets; deliver sufficient community facilities to meet local needs. Delivering sustainable development includes: • Building a strong competitive economy; • Supporting a prosperous rural economy; • Promoting sustainable transport; Requiring good design; • Promoting healthy communities; Protecting green belt land; • Meeting the challenge of climate change, flooding and coastal change; • Conserving and enhancing the natural environment; • Conserving and enhancing the historic environment; • Facilitating the sustainable use of minerals.	The Drought Plan and SEA should take account of the key components of sustainable development and consider the three dimensions to sustainable development: economic, social and environmental.
Department for Energy and Climate Change (2007), Energy White Paper: Meeting the Energy Challenge	
Sets out the UK's international and domestic energy strategy, in the shape of four policy goals: • aiming to cut CO2 emissions by some 60% by about 2050, with real progress by 2020 • maintaining the reliability of energy supplies	The implementation of the Drought Plan may have an influence upon Bristol Water's total energy use. The SEA should take account of the need to promote energy efficiency and seek measures to reduce the effects of climate change due to greenhouse gas emissions. The SEA should also

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
• promoting competitive markets in the UK and beyond • ensuring every home is heated adequately and affordably.	take account of the need to promote the use of renewable energy, where relevant.
Department of Energy and Climate Change (2011), Planning our Electric Future: a White Paper for secure, affordable and low carbon electricity	
This White Paper outlines a package of reforms so that by 2030 there will be a flexible, smart and responsive electricity system, powered by a range of low carbon sources of electricity. This includes engaging with consumers on energy use. Decarbonisation is important in meeting the 2050 targets.	The implementation of the Drought Plan may have an influence upon Bristol Water's total energy use. The SEA should take account of the need to promote energy efficiency and promote the use of renewable energy, where relevant.
Defra (2011), Government Review of Waste Policy in England	
The review is guided by the "waste hierarchy", EU obligations and targets on waste management, carbon impacts, environmental objectives and the costs and benefits of different policy options. The Government's vision include a move beyond the current throwaway society to a "zero waste economy" in which material resources are re-used, recycled or recovered wherever possible, and only disposed of as the option of very last resort.	The Drought Plan may involve measures that involve the generation of waste (e.g. either through construction requirements or operation of supply side options). The SEA should take account of the need to enhance recycling and minimise the amount of waste going to landfill.
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	
The Water White Paper described the Government's intentions to take forward a catchment-based approach to water quality and diffuse pollution and work towards Common Agricultural Policy reforms that will promote the farming industry's role as custodian of the natural environment. The Water White Paper and subsequent Defra strategic policy supports catchment-based approaches to prevent and manage future risks to drinking water quality from agricultural activities, working in partnership with farming communities. These policy objectives are reflected in regulatory guidance (WRPG) from Government and the regulators. The catchment-based approach has now been implemented across England, with catchment partnerships now in place across the river basin to take forward the approach over the coming years	The Drought Plan should take into account the relevant continuing policies set out in this White Paper.
Defra and Environment Agency (2015), How to Write and Publish a Drought Plan	
This sets out how to assess the environmental effects of actions to maintain supply and how to mitigate. An environmental assessment must include details of changes as a result of actions to: • Water flow or level regimes • Water quality • Ecology (sensitive features, habitats and species) • Designated sites (habitats and species) • Fish populations (in particular migratory fish)	The SEA must take into account the approach to environmental assessment and what needs to be carried out by water companies to mitigate or reduce adverse effects of Drought Plan measures, and provide compensation for any effects that remain following mitigation.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
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 EcIA Guidelines. For SEAs of a Drought Plan, guidance should be followed in the ODPM (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. Need to identify what needs to be implemented to mitigate or reduce adverse effects and provide compensation for effects that remain following mitigation. This includes the identification of pre-drought, in-drought and post drought mitigation actions.	
Environment Agency (2016), Drought plan guideline extra information: Environmental assessment for water company drought plans	
This supplements the guidance provided on how to write and publish a drought plan. It provides guidance on how to develop an environmental assessment to support a Drought Plan. It includes the need to consider whether an SEA is required for a drought plan.	The Drought Plan and SEA need to take account of the guidance provided by the Environment Agency.
Defra (2011), The Natural Choice: securing the value of nature: The Natural Environment White Paper	
Addresses the Government's approach to valuing economic and social benefits of a healthy natural environment while continuing to recognise nature's intrinsic value. It describes the vision of the Government for this to be the first generation to leave the natural environment of England in a better state than it inherited, requiring placing the value of nature at the heart of decision-making – in 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	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 measures 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 consider the effects of the Drought Plan measures on ecosystem services.
Defra (2011), UK National Ecosystem Assessment Defra (2014), UK National Ecosystems Assessment Follow on Synthesis of Key Findings	
Ecosystems services from natural capital contribute to the economic performance of the nation. Information and tools to enable decision makers to understand the wider value of ecosystems and their associated services.	The SEA should consider the effects of the Drought Plan measures on ecosystem services.
Defra (2010), Making Space for Nature: A Review of England's Wildlife Sites and Ecological Network	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
This independent review of England's wildlife sites and the connections between them sets objectives and recommendations to help achieve a healthy natural environment that will allow our plants and animals to thrive.	The SEA should take account of the need to maintain or enhance the quality of habitats and biodiversity.
Defra (2009), Safeguarding our Soils – A Strategy for England	
The new Soil Strategy for England – Safeguarding our Soils – outlines the Government's approach to safeguarding our soils for the long term. It provides a clear vision to guide future policy development across a range of areas and sets out the practical steps that we need to take to prevent further degradation of our soils, enhance, restore and ensure their resilience, and improve our understanding of the threats to soil and best practice in responding to them. The Governments vision is that by 2030, all England's soils will be managed sustainably and degradation threats tackled successfully. This will improve the quality of England's soils and safeguard their ability to provide essential services for future generations.	The SEA should take account of the need to ensure that the quality of the regions soils and their management is protected or enhanced.
Defra (2015), The Great Britain Invasive Non-native Species Strategy	
The Strategy is intended to provide a strategic framework, updated from the 2008 framework, within which the actions of government departments, their related bodies and key stakeholders can be better co-ordinated. Its overall aim is to minimise the risks posed, and reduce the negative impacts caused, by invasive non-native species in Great Britain.	The implementation of the Drought Plan may increase the risk of spreading invasive non-native species and the SEA should take account of the need to control and minimise this risk.
Defra (2008), Future Water: the Government's water strategy for England	
• This strategy is a high level Government document which outlines how the Government wants the water sector to look by 2030, considering issues of water demand, water supply, water quality in the natural environment, surface water drainage, river and coastal flooding, greenhouse gas emissions and charging. By 2030 at the latest, the target is to have: • Improved the quality of our water environment and the ecology which it supports, and continued to provide high levels of drinking water quality from our taps • Sustainably managed risks from flooding and coastal erosion, with greater understanding and more effective management of surface water • Ensured a sustainable use of water resources, and implemented fair, affordable and cost-reflective charges.	The SEA should take account of the themes included in the strategy, particularly around water quality, aquatic ecology, drinking water quality, resource use, energy use and greenhouse gas emissions, and adaptation to climate change.
Defra (2007), The Air Quality Strategy for England, Scotland and Wales	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
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.	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 take account of the need to ensure that the region's air quality is maintained or enhanced, and that emissions of air pollutants are kept to a minimum.
Defra (2011), Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services	
The objective for the next decade is: 'to halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people.' Four action areas are: • A more integrated large-scale approach to conservation on land and at sea • Putting people at the heart of biodiversity policy • Reducing environmental pressures • Improving our knowledge.	The SEA must consider impacts on biodiversity. The implementation of the Drought Plan may influence biodiversity in the area and as such the SEA should take account of the need to maintain or enhance the quality of habitats and biodiversity, and take regards of priority species.
Defra (2008), England Biodiversity Strategy –climate change adaptation principles	
Government strategy presenting five principles that are fundamental to conserving biodiversity during climate change. The precautionary principle underlies all the principles.	The SEA must consider the impacts on biodiversity whilst also taking into account the potential for future climate change.
Defra (2005), Making space for water: taking forward a new government strategy for flood and coastal erosion risk management in England	
The strategy outlines how to manage the risks from flooding and coastal erosion in the UK. The strategy aims to reduce the threat of flooding to people and their property, and to deliver the greatest environmental, social and economic benefit, consistent with the Government's sustainable development principles.	The SEA should take account of the need to ensure that flood risk in the region is not adversely affected by the implementation of the Drought Plan.
Defra (2005), Securing the Future: Delivering UK Sustainable Development Strategy	
The strategy for sustainable development aims to enable all people to satisfy their basic needs 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 should take account of the need to ensure the promotion of sustainable development, sustainable resource use and measures to protect the natural environment.
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 take account of the need to protect, and where possible enhance, the quality of the region's land and soils.
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 measures may have an effect upon rural communities and the countryside. The SEA should take account of the need to ensure that the quality of the region's landscapes, natural resources and biodiversity are maintained or enhanced.
Defra (2006), Sustainable Farming and Food Strategy: Forward look	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
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. The SEA should take account of the need 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	
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.	The SEA should consider the potential to include adaptive measures for climate change.
Defra (2015), The government's response to the Natural Capital Committee's third State of Natural Capital report	
This provides a number of recommendations such as: • Agreement for the development of a 25 year plan for a healthy natural economy. This includes helping organisations understand the economic, social and cultural value the impact their actions have on it and how to use the knowledge for better decisions; identify most important and threatened environmental assets; protection of designated areas; address outstanding monitoring and data issues to enable better decisions about strategic investments in natural capital. • Assigning institutional responsibility for monitoring the state of natural capital. • Organisations that manage land and water assets should create a register of natural capital for which they are responsible.	Outputs from the SEA process will help assess how drought plan measures may affect natural capital assets in the Bristol Water supply area.
Defra (2016), Single Departmental Plan 2015-2020	
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.	The SEA should take account of these objectives in assessing the drought plan measures.
Defra (2016), Drought Plan Direction 2016	
Sets out the timescales for water companies to develop and consult on Drought Plans.	The Drought Plan and SEA will take account of the statutory requirements of this Direction.
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	The implementation of the Drought Plan may have an influence on the heritage of the region. The SEA

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
key aims and objectives that demonstrate the contribution the historic environment makes to the country's economic and social wellbeing.	should take account of the need 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 Bristol Water's total energy use. The SEA should take account of the need to promote energy efficiency and promote the use of renewable energy, where relevant.
Environment Act 1995	
The Environment Act, amongst other provisions, set up the EA to manage resources and protect the environment in England and Wales	The SEA should take account of the need 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 take account of relevant priorities, 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 take account of the strategy's objectives, particularly regarding the sustainable management of water resources and protecting the environment.
Environment Agency (2009), Water Resources Strategy for England and Wales	
This national EA strategy for water resource management looks to 2050 and considers the impacts of climate change, the water environment, water resource and valuing water. Aims and objectives include: • Ensure water is used efficiently in homes and buildings, and by industry and agriculture • Provide greater incentives for water companies and individuals to manage demand • Share existing water resources more effectively	The SEA should take account of strategy objectives, particularly around water resource use and availability.
Environment Agency (2015), Creating a Better Place: Environment Agency Corporate Strategy 2014-2016	
The strategy sets out the EA's ambitions for the environment between 2014 and 2016. Priority areas include: • A changing climate • Increasing the resilience of people, property and businesses to the risks of flooding and coastal erosion • Protecting and improving water, land and biodiversity	The SEA should take account of the strategy objectives, particularly regarding the protection and improvement of water, land and biodiversity.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
• Improving the way the EA works as a regulator to protect people and the environment and support sustainable growth	
Environment Agency (2013), Managing Water Abstraction	
This sets out how the EA manages water resources in England and Wales.	The SEA should consider the range of impacts that changes to abstractions could have on the environment, including water bodies, biodiversity, and water users.
Environment Agency and other lead authorities: Shoreline Management Plans	
A large-scale assessment of the risks associated with coastal processes with the aim to help reduce these risks to people and the developed, historic and natural environments. Coastal processes include tidal patterns, wave height, wave direction and the movement of beach and seabed materials. The second generation of Shoreline Management Plans (SMPs) are in production, covering the entire 6000 kilometres of coast in England and Wales. This generation of plans aim to incorporate sea level rise resulting from climate change and current defences with limited life and improvement requirements.	The SEA should take account of the need to reduce flooding risks identified in the Shoreline Management Plans.
Environment Agency (undated), WFD River Basin Characterisation Project: Technical Assessment Method - River abstraction and flow regulation	
This describes the method used to assess the likelihood of river water bodies achieving the relevant WFD objectives as a result of artificial influences on low river flows.	Implementation of the Drought Plan may impact river water quality. The SEA should take account of the need to protect and enhance 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 taken into account in assessing drought plan measures.
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 take account of the need 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	The SEA should take account of the need to avoid environmental damage as a result of the implementation of drought plan measures.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
• Adverse effects on surface water or groundwater consistent with a deterioration in the water's status • Adverse effects on the integrity of a Site of Special Scientific Interest (SSSI) or on the conservation status of species and habitats protected by EU legislation outside SSSIs.	
Environmental Protection Act 1990	
This Act addresses pollution control, waste (including duty of care), contaminated land, statutory nuisance and clean air.	The Drought Plan and the actions arising from it must comply with this Act.
The Eels (England and Wales) Regulations 2009	
Implement European Council Regulations 1100/2007 establishing measures for the recovery of the stock of European eel. The Regulations will help implement delivery Eel Management Plans. They address eel records and re-stocking, close season and reduction of fishing effort, passage of eels and entrainment. The key objective is to ensure that at least 40% of the potential production of silver eel returns to the sea to spawn. This will be achieved by reducing exploitation of all life-stages of the eel and restoration of their habitats.	The SEA should take account of the need to maintain or enhance the quality of habitats and biodiversity, and take regard of protected species identified. This should include migratory fish species and their migratory passage.
English Heritage (2010), Heritage at Risk	
Heritage at Risk is a national project that aims to identify the endangered sites (historic buildings and places with increased risks of neglect and decay) and then help secure them for the future. Heritage at Risk Registers were most recently published in 2015.	The SEA should take account of the need to protect and enhance heritage and landscape.
English Heritage (2008), Climate Change and the Historic Environment	
Sets out the current thinking on the implications of climate change for the historic environment. It is intended both for the heritage sector and also for those involved in the wider scientific and technical aspects of climate change; in the development of strategies and plans relating to the impact of climate change; or in projects relating to risk assessment, adaptation and mitigation.	The SEA should take account of the need to consider the implications of climate change and its potential impacts on heritage and the historic environment.
Flood and Water Management Act 2010 (as amended)	
The Flood and Water Management Act 2010 aims to provide better, more comprehensive management of flood risk for people, homes and businesses. It aims improve efficiency in the water industry, improve the affordability of water bills for certain groups and individuals, and help ensure continuity of water supplies to the consumer.	The Drought Plan needs to take account of the appropriate provisions relating to drought and water resources management contained in this Act.
Historic England (2013), Strategic Environmental Assessment, Sustainability Appraisal and the Historic Environment	
Guidance for addressing the historic environment in Strategic Environmental Assessment or Sustainability Appraisal. It identifies the recommended list of plans, programmes and policies for review, approach to baseline review, potential sustainability issues.	The SEA should consider the potential effects of the Drought Plan on the historic environment, particularly designated assets and their settings, and to important wetland areas with potential for paleo-environmental deposits. Historic characterisation can supplement information about designations. Sustainability issues, objectives and indicators identified in this document should be taken into account in the SEA.
Historic England (2015), Historic Environment Good Practice Advice in Planning Note 3	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
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 the effects of drought plan measures on the 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.	The SEA should take into account the need to raise productivity via long term investment and a dynamic economy.
HM Treasury Infrastructure UK (2014), National Infrastructure Plan	
The Plan focuses on economic infrastructure: the networks and systems in energy, transport, digital communication, flood protection, water and waste management. These are all critical to support economic growth through the expansion of private sector businesses across all regions and industries, to enable competiveness and to improve the quality of life of everyone in the UK. The objectives for the water sector are 'to secure a fair deal for customers while enabling water companies to continue to attract low-cost investment needed to provide the high quality, resilient water services customers want.	The Drought Plan can contribute to the providing resilient water services and the SEA should consider the effects of drought plan measures on other national infrastructure and associated 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 • Invertebrates • Freshwater fish • Natterjack toads • Ancient woodland and veteran trees	The SEA should take account of the need to protect protected species and consider this standing advice provided by Natural England.
Natural England (2014), Site Improvement Plans (SIPs) for Natura 2000 Sites	

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
SIPs have been developed for each Natura 2000 site in England. They provide high level overviews of the issues affecting the condition of the Natura 2000 features on these sites and outlines the priority measures that are needed to improve the condition of the features. SIPs are live documents.	The SEA should take into account the relevant SIPs for Natura 2000 sites that may be affected by the Drought Plan and take account of the need for conservation and enhancement of the designated sites.
Natural England National Character Area (NCA) Profiles	
Natural England has defined a series of 120 National Character Areas as a means to conserve nature in England. They are areas of countryside identified by the unique combination of physical attributes, wildlife, land use and culture.	The SEA should take account of NCA profiles and include a SEA objective relating to the protection of landscape character.
The Natural Environment and Rural Communities Act (NERC) 2006	
This Act makes provision about bodies concerned with the natural environment and rural communities in connection with wildlife, sites of special scientific interest, National Parks and the Broads. The Act is designed to help achieve a rich and diverse natural environment and thriving rural communities.	The SEA should take account of the requirements of the Act and the need 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 considered.
Planning (Listed Buildings and Conservation Areas) Act 1990	
This Act addresses listed buildings including prevention of deterioration and damage and preservation and enhancement of conservation areas.	The Drought Plan and SEA should take account of the need to protect listed buildings and conservation areas.
Salmon and Freshwater Fisheries Act 1975 (as amended)	
The Act lays down the present basic legal framework within which salmon and freshwater fisheries in England are regulated. The Act covers legislation on fishing methods and related offences, obstructions to fish passage, salmon and freshwater fisheries administration and law enforcement.	The SEA should take account of the need to protect salmonid and freshwater fish, including migratory pathways through river systems.
The Water Act 2003	
The Water Act 2003 is in three Parts, relating to water resources, regulation of the water industry and other provisions. The four broad aims of the Act are: • The sustainable use of water resources • Strengthening the voice of consumers • A measured increase in competition • The promotion of water conservation.	The Drought Plan and SEA should take account of the relevant water resource and drought management provisions of this Act.
The Water Environment (WFD) (England and Wales) Regulations 2003	
These Regulations make provision for the purpose of implementing in river basin districts within England and Wales The Water Framework Directive (2000/60/EC) of the European Parliament. The Regulations require a new strategic planning process to be established for the purposes of managing, protecting and improving the quality of water resources.	The SEA should take account of the need to promote the protection and enhancement of all water resources, as well as ensure the efficient use of water resources.
Water Resources Act, 1991 (Amendment) (England and Wales) Regulations 2009 SI3104	
Amends Water Resources Act 1991 by extending the use of Water Protection Zones and Works Notices, in particular to deal with harm to aquatic ecosystems caused by the physical characteristics of a water	The SEA should include objectives that cover hydromorphological aspects and take account of the need to ensure that hydromorphological features are maintained or enhanced.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
course or lake, such as quantity, structure and substrate of river/lake bed. Aligns the Water Resources Act with the hydromorphological requirements of the WFD	
Wildlife and Countryside Act 1981	
The Act is the principal mechanism for providing legislative protection of wildlife in Great Britain. Species listed in Schedule 5 of the Act are protected from disturbance, injury, intentional destruction or sale. Other provisions outlaw certain methods of taking or killing listed species. This Act is brought up to date regularly to ensure the most endangered animals are on the schedule. The Act also improved protection for the most important wildlife habitats.	Some aspects of the Drought Plan may have effects on habitats and species in the Bristol Water SEA area and beyond. The SEA should take account of the need to maintain or enhance the quality of habitats and biodiversity, and have regard to protected species and habitats.
UKTAG on the WFD Guidance Documents (various dates) e.g. Phase 3 Review of Environmental Standards	
UKTAG prepares technical guidance designed to facilitate consistent implementation of the WFD in the UK. This report identifies standards for certain chemicals known as specific pollutants, developments in assessments of risk to groundwater, non-native species, standards for flows in rivers, standards for levels in lakes, standards for acidity in rivers and standards in intermittent discharges.	The SEA should take account of the need to ensure that WFD objectives are achieved. The guidance can contribute to the formulation of criteria for assessing significance of effects of drought plan measures on the water environment.
UK Climate Projections UKCP09	
The UKCP09 Projections provide a basis for studies of impacts and vulnerability and decisions on adaptation to climate change in the UK over the 21st century. Projections are given of changes to climate, and of changes in the marine and coastal environment; recent trends in observed climate are also discussed. The methodology gives a measure of the uncertainty in the range of possible outcomes; a major advance beyond previous national scenarios. The projections allow planners and decision-makers to prepare plans for adaptation to climate change.	The Drought Plan should consider the UKCP09 projections in the broader assessment of the resilience of the water supply system to climate change effects.
Water Industry Act 1991	
This makes provision for the general duties and responsibilities of water undertakers including those associated with Drought Plans and Water Resources Management Plans.	The Drought Plan must take into account this legislation.
Environment Agency, Countryside Council for Wales, Natural England and RSPB (2004), Strategic Environmental Assessment and Biodiversity: Guidance for Practitioners	
This guidance aims to ensure that biodiversity considerations are appropriately addressed in SEA, providing practical information on how effects on biodiversity should be assessed and the level of detail required for an SEA.	The SEA will take account of this guidance in relation to biodiversity effects assessments.
RSPB policy position statement on protected sites	
RSPB promotes good practice amongst local planning authorities and developers, emphasising planning for biodiversity and making use of environmental assessment techniques. At a regional and local level in the UK, RSPB will make representations on any plans	Any adverse effects identified by the SEA on birds or their habitats should prompt consideration of measures to minimise impacts and/or modify the proposed measure as part of the Drought Plan development.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
National	
that may have significant effects on birds and biodiversity. RSPB aims to encourage a positive planning system that results in the right development, in the right place, at the right time.	
The Water Resources Management Plan Regulations 2007	
This provides the legislation for the preparation of Water Resources Management Plans.	The Drought Plan should take account of these requirements in considering linkages between the Drought Plan and longer-term Water Resources Management Plans.
Environment Agency (2015), Drought response: our framework for England	
This national framework aligns with the operational area drought plans to provide a strategic overview for how the Environment Agency will manage a drought to minimise damage to the environment and to secure essential public water supply.	The SEA should consider the potential cumulative effects of the Drought Plan with the EA's proposed drought response.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
Regional / Local	
Natural England Site Improvement Plans: South West (SIPs)	
Site Improvement Plans (SIPs) have been developed for each Natura 2000 site in England as part of the Improvement Programme for England's Natura 2000 Sites (IPENS). Natura 2000 sites is the combined term for sites designated as Special Areas of Conservation (SAC) and Special Protected Areas (SPA). This work has been financially supported by LIFE, a financial instrument of the European Community.	The SEA should take account of the need to improve Natura 2000 sites and any effects of the Drought Plan on these designated sites.
Defra (2010), Eel Management Plans for the United Kingdom. Severn River Basin District	
This Eel Management Plan for the Severn River Basin District (RBD) aims to describe the current status of eel populations, assess compliance with the target set out in Council Regulation No 1100/2007, and detail management measures to increase silver eel escapement. This will contribute to the recovery of the stock of European eel.	The SEA should take account of the need 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.
Environment Agency and Defra (2015), River Basin Management Plan Severn River Basin District Environment Agency and Defra (2015), River Basin Management Plan Thames River Basin District Environment Agency and Defra (2015), River Basin Management Plan South West River Basin District	
Set out the programme of measures and environmental objectives for protected areas and water bodies in each of the river basin districts to meet WFD objectives.	The Drought Plan may have an effect on some of the RBMP objectives. The SEA should include objectives that take into account the relevant objectives of the RBMP, particularly ensuring no deterioration of WFD status.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
Regional / Local	
Environment Agency Catchment Abstraction Management Strategies (CAMS)	
CAMS is the approach used by the Environment Agency to assess the amount of water available for further abstraction licensing taking account of the needs of the environment. The relevant Catchment Abstraction Management Strategies (CAMS) are: Bristol Water supply area: • Severn Corridor CAMS • Bristol Avon CAMS area, and the Brue • Axe and North Somerset Streams CAMS The aims of the CAMS include: • make information on water resource availability and the catchment licensing strategy more readily available • provide a consistent and structured approach to local water resource management • recognise both the abstractor's reasonable need for water and environmental needs • provide results which ensure the relevant Water Framework Directive objectives are met	The SEA will include objectives that ensure that the effect of the Drought Plan on other abstractors, water resource availability and the water environment is assessed.
Water Resources Management Plans from adjacent water companies (2012 - 2040)	
These set out the plans to manage water resources by neighbouring water company areas: • Wessex Water • Thames Water • Severn Trent Water	The Drought Plan should not conflict with the other water company operations that may be operated simultaneously with Bristol Water's drought plan measures. The SEA will consider cumulative effects of the Drought Plan with these Water Resources Management Plans of other neighbouring water companies.
Drought Plans from adjacent water companies	
These set out the plans to manage water supplies during drought by neighbouring water company areas: • Wessex Water • Thames Water • Severn Trent Water	The Drought Plan should not conflict with the other water company operations especially drought measures that may be operated simultaneously with those of Bristol Water. The SEA will consider cumulative effects of the Drought Plan with the Drought Plans of other neighbouring water companies.
Bath and North East Somerset Council, Bristol City Council, North Somerset Council and South Gloucestershire Council (2016), The Joint Spatial Plan: Towards the Emerging Spatial Strategy	
This a statutory Development Plan Document and will form the strategic policy for individual Local Plans prepared by the four authorities going forwards. The scope of the plan, and its supporting evidence base, is intentionally focused on: • Identifying the number of new market and affordable homes and amount of employment land that is needed across the area between 2016-2036.	The Drought Plan and SEA should take into account future trends in household growth as well as other major developments that impact the health and well-being of the local population.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
Regional / Local	
• Setting out the most appropriate spatial strategy and strategic locations for where this growth should be to meet the needs identified. The outcome of this process will be housing apportionments for each local authority. • Identifying the transport and other infrastructure that needs to be provided in the right place and at the right time to support sustainable growth and to provide certainty for local communities and those that want to invest in the area.	
Bristol Development Framework: Core Strategy 2011	
This is a series of documents which will eventually replace the Bristol Local Plan that was adopted in 1997. The core strategy considers how the city will develop over the next 15 to 20 years. The strategy will form part of the statutory Development Plan for the city. The Development Plan is used to help direct a range of implementation plans and decisions on planning applications.	The Drought Plan and SEA should take into account future urban developments that impact on the local population and local environment.
Bristol Health and Wellbeing Policy 2013	
The Bristol Health and Wellbeing Policy addresses our local health priorities based on evidence from the Joint Strategic Health Assessment, stakeholder and public feedback. This strategy is to make Bristol a healthy, living city. This will be achieved through: setting clear priorities for Bristol, identifying areas where the Health and Wellbeing Board can make improvements and adding value to existing services. The key themes of the strategy are to make Bristol a place: • filled with healthy, safe and sustainable communities and places. • where health and wellbeing are improving. • where health inequalities are reducing. • where people get access to quality support when and where they need it.	The Drought Plan and SEA should take into account the strategic objectives of this local policy to improve the health and well-being of the local population.
Bristol City Council (2014), Air Quality Progress Report	
This report fulfils the requirements of the Local Air Quality Management (LAQM) process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the relevant Policy and Technical Guidance documents. The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether the air quality objectives are likely to be achieved. Where exceedances are considered likely; the local authority must then declare an Air Quality	The Drought Plan and SEA should take into account the local air quality objectives of the city council in assessing the drought plan measures.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
Regional / Local	
Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.	
Bristol City Council (2015), Our Resilient Future: A Framework For Climate And Energy Security	
This document defines the strategy and action plan for improving the resilience of the City of Bristol in addressing the threat of climate change through the sustainable use and generation of energy. It sets out our existing commitments; progress to date against these and what more must be done to meet them. Future actions which are to be led or enabled by Bristol City Council are defined as well as a broader range of initiatives which are in progress across the city	The Drought Plan and SEA should take into account these climate and energy strategies for the city when assessing the drought plan measures.
Culture South West (2007) People, Places and Spaces Consultation Draft	
The vision of People, Places and Spaces is to ensure the South West is the region of choice for cultural vibrancy and activity, where culture is seen as a key component of all regional development and a vital contributor to the quality of life of everyone in the region.	The implementation of the Drought Plan options could have on effect on recreation and leisure where it impacts on lakes and other water bodies used for leisure. The SEA should include objectives relating to leisure and recreation.
South West Regional Biodiversity Partnership (2007) South West Biodiversity Implementation Plan	
The South West Biodiversity Implementation Plan sets out a framework of policy, priorities and actions to assist in a more joined up approach to biodiversity delivery. It updates those actions included in the South West Biodiversity Action Plan BAP and is a contribution to the 'Biodiversity Strategy for England' and seeks to contribute to regional plans and policies.	The implementation of the Drought Plan options will have an effect on the biodiversity of the area, particularly on the freshwater environment. The WRMP should pay regard to priority species and habitats. The SEA should seek to maintain or enhance biodiversity in the area and to avoid harm to protected areas.
AONB Management Units AONB Management Plans (Mendip Hills)	
AONB management plans contain actions to ensure the protection and enhancement of the landscape. The following AONB may be of relevance to the Bristol Water Catchment area: - Mendip Hills;	The SEA assessment framework should give consideration to the effects of the Drought Plan on the implementation of the AONB management plans.
Internal Drainage Boards (various) Water Level Management Plans	
Water Level Management Plans (WLMPs) have been established to set out how water levels in an area will be managed to balance the needs of agriculture and the environment. Internal Drainage Boards have to prepare WLMPs for all protected wetland sites (e.g. SSSIs), which details current operational practices for each area and establish actions needed to sustain the special features of the Somerset Levels. The	The Drought Plan should take the WLMPs into account. The SEA should include a guide question relating to the need to protect biodiversity in designated sites.

Objectives identified in the Policy, Plan or Programme	Influences on the Drought Plan and the SEA objectives
Regional / Local	
Somerset Drainage Boards have prepared the following: Allermoor and King Sedgemoor WLMP (2009); Bridgwater and Pawlett WLMP (2009); Brue Valley WLMP (2009), Curry Moor (2009), Langport (Wet and West Moor) (2009); Mark Yeo (2001); North Moor (2009); OMW and Chedzoy (2008); Stockland (2001); West Sedgmoor (2009). WLMPs for the remaining areas are to be prepared in 2013. The Lower Severn Inland Drainage Board has prepared a WLMP for Walmore Common, located downstream of Gloucester on the River Severn	
Avon Wildlife Trust- 2015-2020 vision	
Avon Wildlife Trust vision between 2015-2020 is to 'recover on a grand scale'. The key goals include; • To create ecological networks through landscape-scale habitat management. • Inspire people and communities to care for nature. • Champion the value of nature. The work is focused on five priority areas, which include the North Somerset Levels and Chew Valley which are within the areas of the drought permit options.	The Drought Plan and SEA should take into account these biodiversity strategies for the Avon Wildlife Trust area when assessing the drought plan measures. The SEA should include a guide question relating to the need to protect biodiversity in designated sites.
Somerset Wildlife Trust- 2015-2020 Strategic Plan	
Somerset Wildlife Trust have a number of goals between 2015-2020. The key goals include; • To inspire people and communities to value and protect nature. • To stand up for nature. • To create ecological networks which rebuilds summersets natural environment. • Inspire people and communities to care for nature.	The Drought Plan and SEA should take into account these goals for the Somerset Wildlife Trust area when assessing the drought plan measures. The SEA should include a guide question relating to the need to protect biodiversity in designated sites.
City of Bath World Heritage Site Management Plan (2016-2022)	
A main aim of the plan is to ensure that the Outstanding Universal Value of the Site and its setting is understood, protected and sustained. It should be noted from this that the plan addresses Bath as a World Heritage Site, and is not a management plan for every aspect of life in the city, and that, whilst the boundary of the site covers the whole city, it also includes the setting of the site in the countryside immediately beyond.	The Drought Plan and SEA should take account of the need to protect scheduled monuments and archaeological areas.

Appendix E: Environmental Baseline

An essential part of the SEA process is to identify the current baseline conditions and their likely evolution during the life of the plan (in this case, a maximum of 5 years). It is only with knowledge of existing conditions that the impacts of the Drought Plan can be identified, mitigated and subsequently monitored. The SEA will consider the effect of alternative drought plan measures against the baseline environmental and social conditions that would exist in drought conditions when the measures would be implemented.

The SEA Directive (Directive 2001/42/EC) requires that the evolution of baseline conditions of the area affected by the plan (that would take place with or without implementation of the plan) is identified. This is useful when determining impact significance, particularly with regards to baseline conditions that may already be improving or worsening and the rate of such change.

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 given in Section 2 of this Environmental Report. The following sub-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 at the end of each sub-section.

Limitations of the data and assumptions made

Spatial data have been obtained for most of the SEA topics for the SEA area under consideration, and the baseline is presented graphically as mapped information where appropriate (**Appendix A** of this Environmental Report). In some instances, reporting cycles mean that available information is relatively dated.

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. 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 the reversibility of the effects post drought are important considerations.

Designated Sites

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

- 2 Ramsar Sites

- 3 Special Protection Areas (SPA) [1]
- 6 Special Areas of Conservation (SAC) [2]
- 125 Sites of Special Scientific Interest (SSSI) [3]
- 8 National Nature Reserves (NNR) [4]
- 28 Local Nature Reserves (LNR) [5]

Figure A1 and **Figure A2** show the location of these designated sites. **Table E1** lists the names of the Ramsar sites, SPAs, SACs, SSSIs, NNRs and LNRs.

Table E1 List of Designations within the SEA assessment area

Designation	Site Name
Ramsar	Severn Estuary Somerset Levels & Moors
SPA	Severn Estuary Somerset Levels & Moors Chew Valley Lake
SAC	Avon Gorge Woodlands Mells Valley Mendip Limestone Grasslands Mendip Woodlands North Somerset & Mendip Bats Severn Estuary
SSSI	Asham Wood Ashton Court Avon Gorge Axbridge Hill and Fry's Hill Banwell Caves Banwell Ochre Caves Barnhill Quarry Barns Batch Spinney Ben Knowle Bickley Wood Biddle Street, Yatton Bishop's Hill Wood Blagdon Lake Bleadon Hill Bodkin Hazel Wood Bourne Bowlditch Quarry Boxwell Brimble Pit and Cross Swallet Basins Brinkmarsh Quarry

[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.
[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.

	Brockley Hall Stables Buckover Road Cutting Burledge Sidelands and Meadows Burrington Combe Catcott Edington and Chilton Moors Cattybrook Brickpit Chancellor's Farm Cheddar Reservoir Cheddar Wood Chew Valley Lake Cleaves Wood Cleeve Wood, Hanham Cloford Quarry Compton Martin Ochre Mine Congrove Field and The Tumps Cook's Wood Quarry Court Hill Crook Peak to Shute Shelve Hill Cullimore's Quarry Dolebury Warren Doulting Railway Cutting Draycott Sleights Dundry Main Road South Quarry East Polden Grasslands Ebbor Gorge Edford Woods & Meadows Ellenborough Park West Emborough Quarries Folly Farm Friar's Oven Goblin Combe Gordano Valley Ham Green Harptree Combe Hartcliff Rocks Quarry Hawkesbury Meadow Hawkesbury Quarry Hobbs Quarry Holly Lane Holwell Quarries Horseshoe Bend, Shirehampton Huish Colliery Quarry Kenn Church, Kenn Pier & Yew Tree Farm Kilmersdon Road Quarry Kingdown and Middledown King's Wood and Urchin Wood Lamb Leer Leighton Road Cutting Long Dole Wood and Meadows Longleat Woods Lower Woods

	Lulsgate Quarry Maes Down Maesbury Railway Cutting Max Bog Middle Hope Midger Moon's Hill Quarry Nightingale Valley Old Ironstone Works, Mells Plaster's Green Meadows Portishead Pier to Black Nore Postlebury Wood Priddy Caves Priddy Pools Purn Hill Puxton Moor Quarry Steps, Durdham Down Rodney Stoke Sandpit Hole and Bishop's Lot Severn Estuary Shapwick Heath Sharpham Moor Plot Shiplate Slait Slickstones Quarry, Cromhall St. Catherine's Valley St. Dunstan's Well Catchment Stidham Farm Street Heath Tealham and Tadham Moors The Cheddar Complex The Perch Thrupe Lane Swallet Tickenham, Nailsea and Kenn Moors Twinhills Woods and Meadows Tytherington Quarry Uphill Cliff Upton Coombe Vallis Vale Veizey's Quarry, Tetbury Viaduct Quarry Walton and Ivythorn Hills Walton Common Westhay Moor Weston Big Wood Weston-in-Gordano Windsor Hill Marsh Windsor Hill Quarry Winterbourne Railway Cutting Wookey Hole Wookey Station Writhlington

	Wurt Pit and Devil's Punchbowl Yanal Bog Yarley Meadows
NNR	Ebbor Gorge Leigh Woods Gordano Valley Ham Wall Rodney Stoke Westhay Moor Shapwick Heath Somerset Levels
LNR	Avon Valley Woodland Berrow Dunes Bucklands Pool/Backwell Lake Cadbury Hill Camerton Batch Heritage Site Cheddar Valley Railway Walk Church and Wains Hill Felton Common Folly Farm Gorse Covert Huckford Quarry Lawrence Western Moor Manor Road Community Woodland Middle Hill Common Monks Pool & Bradley Brook Royate Hill Silver Street Sladers Leigh St George's Flower Bank Stockwood Open Space Street Heath Three Brooks Troopers Hill Uphill Wapley Bushes Weston Woods Wick Golden Valley Willsbridge Valley

Priority Habitats and Species

Species and habitats of principal importance for the conservation of biodiversity in England are identified in the Natural Environment and Rural Communities (NERC) Act 2006 Section 41. There are 18 habitats[6] designated within the Act that may be found within the assessment area. These include rivers and streams (e.g. sensitive chalk rivers), reedbeds, fens and water meadows. Important water-related NERC species are listed below:

[6] 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.

- Otter
- Water vole
- Atlantic salmon
- European eel
- Sea/Brown trout
- River lamprey
- White clawed crayfish and
- Snakeshead Fritillary
- Loddon Lilly
- Creeping Marshwort
- Narrow-leaved water-dropwort
- River water-dropwort
- Fine-lined Pea Mussel
- Freshwater Pea Mussel
- Depressed River Mussel
- Greater Water Parsnip
- Club-tailed Dragonfly
- Tassel Stonewort
- Desmoulins Whorl Snail
- Snipe
- Lapwing
- Natterer's Bat
- Daubenton's Bat
- Pipistrelle Bat

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. Within the Bristol Water SEA assessment area, the total area covered by ancient woodland is 5709.29$m^{2.}$ Areas of ancient woodland are shown on **Figure A1**.

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 various WFD River Basin Management Plans (RBMPs) relevant to the study area identifies changes to the natural flow and level of water as one of the major issues affecting the ecology of rivers – these being related to abstraction and flow regulation measures.

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 the existing 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.

The Natural Environment White Paper[7] 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.

Future Baseline in the Absence of the Drought Plan

The future baseline conditions are not expected to be markedly different in the absence of the drought plan. The drought plan seeks to temporarily reduce the demand for water during periods of water scarcity and therefore reducing the volume of water abstracted from most water sources aside from those where drought permits are implemented. Without the plan, there may be no reduced demand for water, or such reductions may be implemented much later with much lower benefit, and therefore a greater overall temporary environmental impact may arise in drought conditions.

Key Issues

- The need to protect or enhance the region's biodiversity, particularly within designated sites, protected species and habitats of principal importance.
- The need to avoid activities likely to cause irreversible damage to natural heritage.
- The need to take opportunities to improve connectivity between fragmented habitats to create functioning habitat corridors.
- The need to control the spread of Invasive Non-Native Species (INNS)
- The need to recognise the importance of allowing wildlife to adapt to climate change.

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

- The need to engage more people in biodiversity issues so that they personally value biodiversity and know what they can do to help, including through recognising the value of the ecosystem services.

Population and Human Health

Baseline

Population

The greater South West region is mainly rural, with a population of 5.34 million. The annual average percentage growth rate for the South West over the 10 year period 2004-2014 was 0.7%[8]. The population is projected to increase from 5.34 million to 5.81 million by 2024 (7% increase)[9] [10].

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 Bristol Water to around 520,000 households. There is a resident population in the Bristol Water supply region of just over 1.1 million.

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 Bristol Water's customers, thereby protecting public health during drought conditions.

Health-related sustainability indicators are reported in the annual ONS Sustainable Development Indicators report[11]. The population of the SW region is generally healthier when compared to the England average, with only 4.3% of the region's population being in bad or very bad health[12]. Healthy life expectancy for both men and women increased 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.

[8] ONS (2015) Overview of UK population, 25 June 2015: http://www.ons.gov.uk/ons/rel/pop-estimate/population-estimates-for-uk--england-and-wales--scotland-and-northern-ireland/mid-2014/sty---overview-of-the-uk-population.html
[9] ONS (2016) Subnational population projections for England: 2014-based - http://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/subnationalpopulationprojectionsforengland/2014-05-29
[10] ONS (2015) Housing Statistical Release. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/407556/Household_Projections_-_2012-2037.pdf
[11] ONS (2015). Sustainable Development Indicators: July 2015. Available from: http://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/articles/sustainabledevelopmentindicators/2015-07-13#society
[12] Public Health England - Local Health Report: 2014 Available at https://www.lambeth.gov.uk/sites/default/files/ssh-report-south-west.pdf

Recreation and Tourism

The city of Bristol and its surrounding areas (i.e. Mendip Hills AONB, etc.) constitute main tourist attractions in the South West of England. The West of England Local Enterprise Partnership has summarised the tourist activity in the area and some of the key findings are listed below:

- 3 million overnight tourist visits per year to the West of England
- 28 million day visitors
- £1.8 billion annual expenditure by tourists
- Direct tourism gross value added of £0.95 billion
- 55,000 people employed in tourism
- 3.2 million visits to the top ten visitor attractions

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 A2 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). Bristol 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 and canals in the area are of particular importance with respect to navigation (e.g. the Kennet and Avon Canal) and angling (e.g. Bristol Harbour).

Public areas of open space, country parks[13], Public Rights of Way, walking routes and cycle routes are also important with respect to recreation and tourism. 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 Local Authorities have therefore developed Green Infrastructure Strategies or Studies addressing these issues. Green infrastructure will often play a large part in local recreational resources.

Economy and Employment

The South West was responsible for 7.7% of the UK's gross value added (GVA) in 2011 at £101.1 billion. More than half of this was produced by the Gloucestershire, Wiltshire and

[13] Area designated for people to visit and enjoy recreation in a countryside environment

Bristol/Bath area, which includes Swindon. The unemployment rate in the South West increased 1.8 percentage points from Q4 2007 to Q4 2012, the lowest increase along with London. At 5.5% in Q4 2012, the South West had the lowest unemployment rate among the regions of England and countries of the UK. Within the region, the unemployment rate was lowest in West Dorset at 3.2% and highest in Gloucester at 7.3% for the year to December 2012[14].

At 23,829 square kilometres, the South West region covers nearly ten per cent of the UK's land mass with almost three quarters of its entire area (1.8 million hectares) devoted to agriculture. There are just over 25,000 commercial 'agricultural holdings' of all shapes and sizes ranging from small family farms to highly sophisticated, multiple thousand acre estates and agri-enterprises. 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

In response to recent studies, access to the recreational resources, green spaces and the historic environment will have greater importance in future planning[15]. 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 promote Green Infrastructure Partnerships[16] with civil society to support the development of green infrastructure in England. Improvements to the quality of the water environment and certain potential climate change impacts will present opportunities for an expanding tourist industry in the region[17].

Future Baseline in the Absence of the Drought Plan

Without the Drought Plan there may be less certainty in securing essential water supplies for people and businesses during a period of drought. This may lead to some temporary impacts on human health and the local economy. Therefore, the absence of a drought plan would have an overall negative effect upon population and human health during periods of drought, with a potentially higher risk of needing water use restrictions and for a longer duration if appropriate contingency measures are not implemented in a planned and timely manner.

Key Issues

- The need to ensure water supplies remain affordable especially for deprived or vulnerable communities, reflecting the importance of water for health and wellbeing.
- The need to ensure continued improvements in levels of health across the region, particularly in urban areas and deprived areas.
- The need to ensure public awareness of drought conditions and importance of maintaining resilient, reliable public water supplies without the need for emergency drought measures.

[14] Regional Profile of South West - Economy, June 2013 http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/rel/regional-trends/region-and-country-profiles/economy--june-2013/economy---south-west--june-2013.html

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

[16] 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.

[17] Defra (2012) The UK Climate Change Risk Assessment 2012 Evidence Report.

- The need to ensure water quantity and quality is maintained for a range of uses including tourism, recreation, navigation and other uses such as agriculture.
- The need to ensure a balance between different aspects of the built and natural environment that will help to provide opportunities for local residents and tourists for access to green infrastructure and the natural and historic environment, as well as protecting and enhancing recreational resources.
- The need to accommodate an increasing population and local housing growth through provision of essential services including water supply.
- Sites of nature conservation importance, heritage assets, water resources, important landscapes and public rights of way contribute to recreation and tourism opportunities and subsequently health and wellbeing and the economy.

Material Assets and Resource Use

Baseline

Water Use

Bristol Water supplies nearly 264 million litres of drinking water each day from its 16 water treatment works through over 6,700 kilometres of water mains to customers' taps. Between 2015 and 2040, Bristol Water proposes to reduce water leakage from 18% of the total water supplied to the network to less than 10%. Bristol Water is actively pursuing measures to encourage its customers to reduce their water use and use water wisely, particularly in dry conditions. Currently, only 40% of households are metered although Bristol Water plans to reach a metered household rate of 95% by 2040. These measures are particularly relevant to the Drought Plan when water efficiency activities help to safeguard essential water supplies. It is expected that between 2015 and 2040, average daily water use will decrease from 146 litres per person to 130 litres per person.

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); household recycling rates have climbed to nearly 44% (2014/15)[18]; waste generated by businesses declined by 29% in the six years to 2009 and business recycling rates are above 50%[19]. 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 arising are 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 its treatment facilities. Waste streams include commercial and industrial waste (statistics include waste arising from the power and utilities sector, which includes water supply and sewage removal), and also hazardous wastes. **Table E2** shows the waste generation by economic activity in England.

[18] 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

[19] Defra (2011), Government Review of Waste Policy in England 2011

Table E2 Waste generation split by NACE[20] economic activity in England ('000 tonnes)[21]

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

Currently, 97% of the waste disposed by Bristol Water complies with Environmental Permitting Regulations; a 99% compliance rate is expected by 2040.

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 processes.

Future Baseline

Bristol Water aims to reduce leakage from its water distribution network over the next 25 years with several schemes planned to support the reduction. Bristol Water's aim is to manage water resources more efficiently in order to improve the reliability of water provision to its customers. To this effect, Bristol Water has set a target to reduce the frequency of restrictions on customer's water use, such as Temporary Use Bans, from 1 in 15 years to 1 in 25 years by 2040.

The Government's national aspiration is to reduce water usage to an average of 130 l/h/day by 2030. Bristol Water aims to achieve such a reduction while increasing household metering to 95% by 2040.

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 Plan[22] (NIP) (2010) included a vision 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

[20] Statistical classification of economic activities developed by the European Community –Nomenclature of Economic Activities (NACE)
[21] 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
[22] HM Treasury Infrastructure UK (2010) National Infrastructure Plan

with the waste hierarchy. The plan was updated in 2014, setting out progress to date whilst including detailed delivery plans to 2020 in key economic sectors[23].

Future Baseline in the Absence of the Drought Plan

Drought planning represents a driver for increased resource efficiency (i.e. reduced water demand) during drought conditions. In the absence of drought planning, such strategies would not necessarily be prioritised and therefore this could have an overall temporary negative impact through the potential need for emergency measures to address water supply risks, requiring a greater use of material assets and natural resources.

Key Issues

- The need to minimise the consumption of resources, including water and energy.
- The need to reduce the total amount of waste produced in the region, from all sources, and to reduce the proportion of this waste sent to landfill.
- The need to continue to reduce leakage from the water supply system to help reduce demand for water.
- The need to continue to encourage more efficient water use by consumers.

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

Surface Waters: Rivers and Canals

The area under consideration lies within the Severn River Basin District and the South West River Basin District. 85% of the water supply managed by Bristol Water comprises surface waters while 15% comes from groundwater. A major abstraction is taken from the Gloucester and Sharpness Canal under agreement with the Canal & River Trust which is supplied by the River Severn and other local rivers, the Cam and the Frome. This single abstraction provides 50% of the water available to Bristol Water. Abstraction from the River Severn is controlled by statutory and abstraction licence conditions. In dry periods, use of water supplies from the River Severn is increased by Bristol Water to conserve water stored in reservoirs.

Surface water features and the WFD ecological status of river catchments in the study area are shown in **Figure A3**.

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

Surface Waters: Lakes and Reservoirs

There are three surface water impounding reservoirs (Cheddar, Blagdon, Chew) collecting water from the Mendip Hills. Chew Valley Reservoir is the largest and can store 20,460 million litres. There are also other smaller raw water reservoirs within the supply system.

Groundwater

Bristol Water operates 16 small groundwater sources such as springs, wells and boreholes which are used conjunctively and account for 15% of the water available.

Under the WFD, there are two separate classifications for groundwater bodies: chemical status and quantitative status. A groundwater body will be classified as having poor quantitative status in the following circumstances: where low groundwater levels are responsible for an adverse impact on rivers and wetlands normally reliant on groundwater; where abstraction of groundwater has led to saline intrusion; where it is possible that the amount of groundwater abstracted will not be replaced each year by rainfall. For a groundwater body to be at good status overall, both chemical status and quantitative status must be good. In addition to assessing status, there is also a requirement to identify and report where the quality of groundwater is deteriorating as a result of pollution and which may lead to a future deterioration in status.

The groundwater quantitative status for the study area is shown in **Figure A4**.

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 take account of the groundwater travel time to an abstraction.

Key pressures

The key pressures in the catchment, particularly affecting ecological and biological status are:

- Discharges from sewage treatment works releasing ammonia, phosphates, and other pollutants into the water environment. The major discharges in the catchment are from sewage treatment works and these can lead to signs of nutrient enrichment at times of low flows, for example in the Axe and North Somerset Streams[24];
- Intermittent urban discharges (pollution incidents);
- Diffuse runoff from agricultural land into water courses (increasing nitrates and to a lesser extent pesticides);
- Impact of historical release of nitrates into groundwater (nitrates continue to accumulate in water many years after the sources of nitrates are removed); and
- Surface water abstraction (public water supply and other abstractions impacting on low flows in the catchment).

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.

[24] Environment Agency (2015). River Basin Management Plan Severn River Basin District

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, and concentrations of supporting physico-chemical elements (e.g. oxygen or ammonia and concentrations of specific pollutants)

Of the 220 surface waterbodies in the two management catchments within which the Bristol Water SEA area falls into, only 11% are currently classed as achieving the 'good' WFD overall status. However, by 2021 it is predicted that a further 24% of the waterbodies will achieve this standard. The groundwater body status underlying the area of interest is generally good, except for the Bristol Triassic aquifer which is of poor chemical status despite having a good quantitative status. The WFD summary is presented in **Table E3**.

The WFD ecological classification for river catchments in the study area is shown in **Figure A3**.

Table E3 Key Status Statistics for Surface and Groundwater Bodies in the Bristol Avon and North Somerset Management Catchment and South and West Somerset Management Catchment

River and Lake Water Bodies	2015	2021	Improvement Actions
% at good ecological status or good potential	11%	35%	Reduce abstraction rate (daily or hourly)
% at good or high biological status	30%	50%	Additional treatment to reduce concentrations of phosphate
% at good chemical status	94%	94%	
% at good status overall	11%	35%	
Groundwater Bodies	**2015**	**2021**	**Improvement Actions**
Wells	good	good	N/A
Bristol Triassic	poor	poor	
Mendips	good	good	

Flood Risk

Flooding can result from rivers and the sea, directly from rainfall on the ground surface and rising groundwater, overwhelmed sewers and drainage systems, and from reservoirs, canals and lakes and other artificial sources. The Environment Agency's Flood Risk Maps available on its website show what is at risk of flooding, including people, economic activity and natural and historic environment. There are two defined high flood risk areas – coastal areas along Bridgwater Bay (including areas near Cleveland) and the Mendip Hills 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 (Flood Zone 3). The coastal areas are not very populated and flood risk is mitigated by flood defences where urban areas are present (i.e. Weston-Super-Mare).

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 will invest £3 billion between 2016 and 2021 into a programme that will result in flood risk and coastal erosion reduction. Climate change may have a significant effect upon future flood risk in the region. This is discussed further below and in the Air and Climate Change topic.

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)[25] assumes the following key trends:

- Milder wetter winters resulting in increases in peak river flows of 20%, meaning that flooding will happen more often and large scale severe flooding will be more likely to happen.

- More frequent, short duration intense storms in summer causing more widespread and regular flash flooding from overwhelmed drainage systems and some rivers.

The NPPF[26] states that inappropriate development in areas at risk of flooding (in Flood Zone 1[27], Flood Zone 2[28], Flood Zone 3a[29] or Flood Zone 3b - the functional floodplain); should be avoided by directing development away from areas at highest risk. The NPPF requires that where development is necessary, it should be made safe without increasing flood risk elsewhere, as defined in the Technical Guidance to the NPPF[30].

The UK Climate Change Risk Assessment (CCRA) 2017 Evidence Report[31] draws together and interprets the evidence gathered by CCRA regarding current and future threats and

[25] 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
[26] 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
[27] Low probability of river or sea flooding (<0.1%) which has critical drainage problems
[28] Medium probability of river (1%-0.1%) or sea flooding (0.5%-0.1%)
[29] High probability of river (>1%) or sea flooding (>0.5%)
[30] Communities and Local Government (2012) Technical guidance to the National Policy Planning Framework
[31] Defra (2016) The UK Climate Change Risk Assessment 2017 Evidence Report

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

Future Baseline in the Absence of the Drought Plan

Without the Drought Plan there would be no planned and timely reductions in water demand and therefore levels of abstraction will not be reduced. This is likely to have a negative temporary effect on the water environment and temporary effects WFD status. Whilst the Drought Plan may result in localised impacts where Drought Permits are implemented, the overall effect to the environment is more beneficial with the Drought Plan in place.

Key Issues

- The need to further improve the quality of the region's river, estuarine and coastal waters taking into account WFD objectives.
- The need to maintain the quantity and quality of groundwater resources taking into account WFD objectives.
- The need to improve the resilience, flexibility and sustainability of water resources in the region, particularly in light of potential climate change impacts on surface waters and groundwaters.
- The need to ensure sustainable abstraction to protect the water environment and meet society's needs for a resilient water supply.
- The need to ensure that people understand the value of water.

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.

Soil, Geology and Land Use

Baseline

Geology

Geological sites may be 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.

Geological Conservation Review (GCR) sites have been highlighted, which relate to geological important sites, related to their scientific elements and understanding of earth sciences, which are important on a national and international level[32]. 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 is related to disused quarries and geological important sites such as gravels and cliffs. There are 88 GCRs within the study area (**Figure A4**).

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 A5** that the majority of agricultural land is classified as Grade 3. Soil quality and structure is affected by changes in land use, groundwater levels and farming practices. Soil quality can influence run-off rates and therefore flooding and water quality.

Future Baseline

The vision of Defra's Soils Strategy for England[33] is for all England's soils to be managed sustainably and degradation threats tackled successfully by 2030. This will improve the quality of England's soils and safeguard their ability to provide essential services for future generations.

The Water White Paper described the Government's intentions to take forward a catchment-based approach to water quality and diffuse pollution and work towards Common Agricultural Policy reforms that will promote the farming industry's role as custodian of the natural environment[34]. 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 SEA assessment area) to implement the catchment-based approach.

One of the core planning principles of the National Policy Planning Framework (NPPF) is to encourage the effective use of land by reusing land that has been previously developed (brownfield land), provided that it is not of high environmental value. The NPPF also places great importance with respect to Green Belt policy, the aim of which is to prevent urban sprawl by keeping land permanently open. Green Belt serves five purposes: to check the unrestricted sprawl of large built-up areas; to prevent neighbouring towns merging into one another; to assist in safeguarding the countryside from encroachment; to preserve the setting and special character of historic towns; and to assist in urban regeneration, by encouraging the recycling of derelict and other urban land. Although the NPPF promotes a presumption in favour of sustainable development, this does not apply where proposed developments may affect European or other designated sites covered by specific policies.

[32] http://jncc.defra.gov.uk/page-2947
[33] Defra (2009), Safeguarding our soils – A Strategy for England
[34] Defra (2011) Water for Life - Water White Paper

Future Baseline in the Absence of the Drought Plan

No significant differences between the future baseline with and without the Drought Plan have been identified.

Key Issues

- The need to protect and enhance geological features of importance (including geological SSSIs) and maintain and enhance soil function and health.
- The need to manage the land more holistically at the catchment level, benefitting landowners, other stakeholders, the environment and sustainability of natural resources (including water resources).
- The Drought Plan is unlikely to affect land-use as no permanent development will be required to meet the objectives of the plan.

Air and Climate

Baseline

Local Air Quality

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

The local air quality 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 A6**. There are 6 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 strategy[35] builds on previous strategies focused on traffic emission impacts and includes a new ozone (O_3) 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 (CO_2). Bristol Water is a large user of energy due to the energy needed to treat and pump water. Between April 2015 and March 2016, 42 kilotonnes of CO_2 were produced by Bristol Water, with around 1.4% of its total energy use derived from renewable sources. Bristol Water's emissions figure per megalitre of water supplied was 489 kg/CO_2e/Ml in 2012, with plans to reduce emissions to 200kgCO_2e/Ml by 2040.

[35] Defra (2007), The Air Quality Strategy for England, Scotland and Wales

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 E4.**

Table E4 Potential impact of climate change on the water environment and water-related infrastructure

Sector	Impact
Water Resources (i). water supply	• 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.
ii. water demand	• 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.

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

Adaptation to Climate Change

The UK Climate Change Risk Assessment (CCRA) 2017 Evidence Report[36] draws together and interprets the evidence gathered by CCRA regarding current and future threats and opportunities for the UK posed by the impacts of climate change up until 2100. Overall, the findings of the CCRA indicate that the greatest need for early adaptation action (i.e. within the next 5 years) is in the following areas:

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

[36] Defra (2016) The UK Climate Change Risk Assessment 2017 Evidence Report

- Opportunities for the UK economy, particularly to develop climate adaptation products and services.

Future Baseline

Government and international targets (including the 2016 Paris Agreement) 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)[37]. Objectives are being achieved for many air pollutants (lead, benzene, 1,3-butadiene and carbon monoxide (CO)). However, measurements show that long-term reducing trends for NO_2 and PM_{10} are flattening or even reversing at a number of locations, despite current policy measures. Projections suggest with a high degree of certainty that objectives for PM_{10}, NO_2 and O_3 will not be achieved by 2020[38].

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.

Future Baseline in the Absence of the Drought Plan

In the absence of the Drought Plan, the future baseline has no significant differences. During a period of drought, the Drought Plan aims to reduce the demand for water and therefore, in the absence of the Drought Plan, there may be greater negative effects on Air and Climate due to the need for more water pumping and treatment. Without the drought plan, the region would be less resilient to the adverse effects of climate change in relation to drier weather conditions and/or more frequent or more intense drought events.

Key Issues

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

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 assessment area are shown in **Figure A7**.

[37] DECC (2015) Updated energy and emissions projections 2015 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/501292/eepReport2015_160205.pdf
[38] Defra (2007), The Air Quality Strategy for England, Scotland and Wales

Nationally important archaeological sites are statutorily protected as Scheduled Monuments (SMs)[39]. There are currently around 19,850 entries in the Schedule for the UK[40]. There are approximately 470 SMs located within the assessment area. Registered Parks and Gardens also make up part of the UK's cultural heritage of national importance (49 in the assessment area). An overview of all cultural heritage sites in the study area is provided in **Table E5.**

Table E5 Heritage assets in the assessment area

Asset	Assessment Area
Scheduled Monuments	470
Listed Buildings	10,276
Registered Historic Parks and Gardens	49
Registered Historic Battlefields	1

Historic England collects data on buildings at risk. There were 5,341 designated assets on the Heritage at Risk (HAR) register in 2016. 435 entries from the 2015 Register have now been removed for positive reasons. Of these, 406 count towards Historic England's target to remove 750 entries by 2018. The percentage of Grade I and II* listed buildings, and structural scheduled monuments that are capable of beneficial use has reached an all-time high (45.7%). However, maintaining these heritage sites is becoming increasingly difficult

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 Scheduled Monuments resulting from water abstraction or dewatering is 1.71% nationally[100]. However, other assets, such as those composed of organic material and preserved in waterlogged or anaerobic conditions, are proportionately more at risk (e.g. palaeoenvironmental deposits).

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 and 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*

[39] Nationally important archaeological sites designated under the Ancient Monuments and Archaeological Areas Act, 1979, www.culture.gov.uk/historic_environment/scheduled_ancient_monuments/
[40] Historic England (2016) Heritage counts 2016

that they can be enjoyed for their contribution to the quality of life of this and future generations"[41].

Recent and ongoing national economic difficulties may have a negative effect on removing heritage assets from the heritage at risk register. Climate change could have variable impacts on heritage assets in the future. Some types of assets and landscapes have already experienced and survived significant climatic changes in the past and may demonstrate considerable resilience in the face of future climate change. However, many more historic assets are potentially at risk from the direct impacts of future climate change[42].

Future Baseline in the Absence of the Drought Plan

The future baseline is not expected to be significantly different in the absence of the Drought Plan but there may be local temporary adverse effects in drought conditions on water-dependent heritage features due to higher levels of water abstraction than would occur with the Drought Plan in place.

Key Issues

- The need to conserve or enhance sites of archaeological importance and cultural heritage interest, and their setting, particularly those which are sensitive to the water environment.
- The need to protect water-dependent heritage sites during drought conditions.

Landscape and Visual Amenity

Baseline

The landscape character network[43] 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 plan measures 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. AONBs and Natural England National Character Areas (NCAs) are shown on **Figure A8** 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'[44]. They are designated

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

under the National Parks and Access to the Countryside Act, 1949, strengthened by the Countryside and Rights of Way Act, 2000. The primary purpose of the AONB is 'to conserve and enhance the natural beauty of the landscape.' There are 3 AONBs within or partially within the study area:

- Cotswolds AONB
- Mendip Hills AONB
- Cranborne Chase and West Wiltshire Downs AONB

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 and encouraging the recycling of derelict and other urban land. In the Bristol Water SEA assessment area, the most notable greenbelt is the Bristol and Bath greenbelt which extends over approximately 1233646 m^2, surrounding both cities.

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 A8** and **Table E6** summarises the key features.

Table E6 Landscape Character Areas within the SEA Assessment Area

LCA	Key Features
Severn and Avon Vales	• Diverse range of flat and gently undulating landscapes, united by broad river valley character; • Riverside landscapes with little woodland, often very open. Variety of land uses from small pasture fields and commons in the west to intensive agriculture in the east; • Distinct and contrasting vales: Evesham, Berkeley, Gloucester, Leadon, Avon; • Many ancient market towns and large villages along the rivers; • Nucleated villages with timber frame and brick buildings; • Prominent views of hills - such as the Cotswolds, Bredon and the Malverns - at the edges of the character area.
Bristol, Avon Valleys and Ridges	• A landscape of very mixed landform, geology and settlement pattern, strongly influenced by the Avon Valley, Bristol at its centre and by its industrial history; • Low-lying, shallow valleys which contrast with limestone ridges and scarps; • Frequent large villages, small towns and major conurbations but also undisturbed rural areas; • Wooded scarps - with ancient woodland - and high, open, downland ridges; • Legacy of coal industry evident in tips, settlement patterns and reclaimed areas; • Waterside mills and other features of former rural industries; • Frequent parks, mansions and manor houses.
Mendip Hills	• A chain of prominent limestone hills extending inland from the coast and rising up sharply from surrounding low lands; • An open, largely treeless, limestone plateau with karst features, cave systems, dry stone walls and sparse settlement;

	• Dramatic gorges, cliffs and escarpment slopes around the plateau; • A sharp contrast between the open plateau and steep escarpment slopes of the karst landscape and the more complex, gentler landforms in the east; • Many industrial archaeological sites reflecting the lead, coal and cloth industries; • Perpendicular church towers; • Country houses in the east with wooded parks; • Buildings in local stone with pantile roofs: stones include grey limestone, reddish dolomitic limestone and grey or honey-coloured oolitic limestone; • Outstanding prehistoric ritual landscapes.
Somerset Levels and Moors/ Mid Somerset Hills	• Flat, open landscape of wet pasture, arable and wetland divided up by wet ditches or 'rhynes'; • Absence of dispersed farmsteads or any buildings on levels and moors. Nucleated settlements on ridges/islands; • Surrounded, and divided up, by low hills, ridges and islands which form distinctive skylines; • Peat working and nature reserves contrasting with the rectilinear planned landscape of the Moors; • Dramatic and prominent hills such as Brent Knoll, the Isle of Avalon and Barrow Mump, rising above the Levels and Moors; • Sparse tree cover on Levels and Moors contrasting with woodland, hedges and orchards of surrounding hills; • Sparsely populated Moors but settlements common on hills, ridges and islands; • Historic landscape strongly evident in features ranging from prehistoric trackways and lake villages to post-medieval enclosures and peat working; • International nature-conservation significance for wetland, waders and waterfowl; • Narrow dune belt fringing Bridgwater Bay; • Raised rivers and levees, with main roads and causeways flanked by houses. Flooding in winter over large areas.
Cotswolds	• Defined by its underlying geology: a dramatic scarp rising above adjacent low lands with steep combes, scarp foot villages and beech woodlands; • Rolling, open, high wold plateaux moulded by physical and human influences, with arable and large blocks of woodland, divided up by small, narrow valleys; • Incised landscapes with deep wide valleys; • Flat, open dip slope landscape with extensive arable farmland; • Prominent outliers within the low lands; • Honey-coloured Cotswold stone in walls, houses and churches; • Attractive stone villages with a unity of design and materials.

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 no Heritage Coast areas in the Bristol Water's SEA assessment area.

Tranquillity Areas

'Tranquillity' can be defined as the quality of calm that is experienced by people in places full of the sites and sounds of nature. The Campaign for Rural England (CPRE) developed tranquillity mapping for England to identify areas that are either disturbed or undisturbed by urban areas (towns and cities), traffic (road, rail and airports), power stations, pylons, power lines and open-cast mines[45]. Effects on tranquil areas will be considered when assessing the drought plan measures.

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

Future Baseline

With the pressures for housing in parts of the assessment 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.

Future Baseline in the Absence of the Drought Plan

The future baseline is not expected to be significantly different in the absence of the Drought Plan but there may be local temporary adverse effects in drought conditions on water-dependent landscape and visual amenities due to higher levels of water abstraction than would occur with the Drought Plan in place.

Key Issues

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

Inter-relationships

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

Table E7: Key inter-relationships between topics

ID	Topic	1	2	3	4	5	6	7	8
1	Biodiversity, flora and fauna		X		X		X		X
2	Population and human health	X		X	X	X	X	X	X
3	Material assets and resource use				X	X	X		
4	Water	X	X	X		X	X	X	X
5	Soil, geology and land use	X	X	X	X			X	X
6	Air and climate	X	X	X	X	X			X
7	Archaeology and cultural heritage			X	X	X			X
8	Landscape and visual	X	X		X	X		X	

Summary of Key Issues

A summary of the key issues identified by the policies, plans and programmes review and the baseline data review is presented in **Table E7.** These key issues have been used to develop the SEA objectives in **Section 4**.

Table E8 Summary of the key sustainability issues identified for the SEA

SEA Topic	The key sustainability issues arising from the review of the plans, programmes and policies review and baseline
Biodiversity, flora and fauna	Plans, programmes and policies review:

SEA Topic	The key sustainability issues arising from the review of the plans, programmes and policies review and baseline
	• Conservation and enhancement of the natural environment and of biodiversity, particularly internationally and nationally designated sites, whilst taking into account future climate change. • Promote a catchment-wide approach to water use to ensure better protection of biodiversity. • To achieve favourable condition for priority habitats and species. • Avoidance of activities likely to cause irreversible damage to natural heritage. • Support well-functioning ecosystems, respect environmental limits and capacities, and maintain/enhance coherent ecological networks, including provision for fish passage and connectivity for migratory/mobile species. • Strengthen the connections between people and nature and realise the value of biodiversity. • Protection, conservation and enhancement of natural capital. Ecosystem services from natural capital contributes to the economy and therefore should be protected and, where possible, enhanced. • Avoidance of activities likely to cause the spread of Invasive Non-Native Species (INNS) • A need to protect the green infrastructure network. Baseline review: • The need to protect or enhance the region's biodiversity, particularly within designated sites, protected species and habitats of principal importance. • The need to avoid activities likely to cause irreversible damage to natural heritage. • The need to take opportunities to improve connectivity between fragmented habitats to create functioning habitat corridors. • The need to control the spread of Invasive Non-Native Species (INNS) • The need to recognise the importance of allowing wildlife to adapt to climate change. • The need to engage more people in biodiversity issues so that they personally value biodiversity and know what they can do to help, including through recognising the value of the ecosystem services.
Population and human health	Plans, programmes and policies review: • Water resources play an important role in supporting the health and recreational needs of local communities and businesses. • To ensure all communities have a clean, safe and attractive environment in which people can take pride. • To ensure secure, safe, reliable, dependable, sustainable and affordable supplies of water are provided for all communities. • Access to high quality open spaces and opportunities for sport and recreation can make an important contribution to the health and well-being of communities. • Promotion of healthy communities and protection from risks to health and wellbeing. • Promotion of a sustainable economy supported by universal access to essential utility and infrastructure services. • To provide a clean, healthy environment that benefits both people and the economy. • Water resources play an important role in supporting the health and recreational needs of local communities. Baseline review:

SEA Topic	The key sustainability issues arising from the review of the plans, programmes and policies review and baseline
	• The need to ensure water supplies remain affordable especially for deprived or vulnerable communities, reflecting the importance of water for health and wellbeing. • The need to ensure continued improvements in levels of health across the region, particularly in urban areas and deprived areas. • The need to ensure public awareness of drought conditions and importance of maintaining resilient, reliable public water supplies without the need for emergency drought measures. • The need to ensure water quantity and quality is maintained for a range of uses including tourism, recreation, navigation and other use such as agriculture. • The need to ensure a balance between different aspects of the built and natural environment that will help to provide opportunities for local residents and tourists to access green infrastructure and the natural and historic environment, as well as protecting and enhancing recreation resources. • Sites of nature conservation importance, heritage assets, water resources, important landscapes and public rights of way contribute to recreation and tourism opportunities and subsequently health and wellbeing and the economy.
Material assets and resource use	Plans, programmes and policies review: • Promote sustainable production and consumption whilst seeking to reduce the amount of waste generated by using materials, energy and water more efficiently. • Consider issues of water demand, water supply and water quality in the natural environment and ensure a sustainable use of water resources. • Contribute to a resource efficient, green and competitive low carbon economy. Maintain a reliable public water supply and ensure there is enough water for human uses, whilst seeking to maintain a healthy water environment as well as providing an improved water environment. • Minimise the production of waste, ensure waste management is in line with the 'waste hierarchy', and eliminate waste sent to landfill. • Promote the sustainable management of natural resources. Baseline review: • The need to minimise the consumption of resources, including water and energy. • The need to reduce the total amount of waste produced in the region, from all sources, and to reduce the proportion of this waste sent to landfill. • The need to continue to reduce leakage from the water supply system to help reduce demand for water. • The need to encourage more efficient water use.
Water	Plans, programmes and policies review: • Promote sustainable water resource management, including measures to reduce water consumption. • Maintain and improve water quality (surface waters, groundwater and bathing water). • Expand the scope of water quality protection measures to all waters, surface waters and groundwater. • Improve the quality of the water environment and the ecology which it supports, and continue to provide high levels of drinking water quality. • Ensure appropriate management of abstractions and protect flow and level variability across the full range of regimes from low to high conditions.

SEA Topic	The key sustainability issues arising from the review of the plans, programmes and policies review and baseline
	• Prevent deterioration of waterbody status. • Balance the abstraction of water for supply with the other functions and services the water environment performs or provides. • Steer new development to areas with the lowest probability of flooding and manage any residual flood risk, taking account of the impacts of climate change. • Promote measures to enable and sustain long term improvement in water efficiency. Baseline review: • The need to further improve the quality of the regions river, estuarine and coastal waters taking into account WFD objectives. • The need to maintain the quantity and quality of groundwater resources taking into account WFD objectives. • The need to improve the resilience, flexibility and sustainability of water resources in the region, particularly in light of potential climate change impacts on surface waters and groundwaters. • The need to ensure sustainable abstraction to protect the water environment and meet society's needs for a resilient water supply. • The need to ensure that people understand the value of water.
Soil, geology and land use	Plans, programmes and policies review: • Protect and enhance the quality and diversity of geology (including geological SSSIs) and soils, including geomorphology and geomorphological processes which can be lost or damaged by insensitive development. • Maintain the quality and diversity of geology and soils, which can be lost or damaged by insensitive development. • Ensure that 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. • Promote catchment-wide approach to land management by relevant stakeholders, in order to benefit natural resources, reduce pollution and develop resilience to climate change. • Promote mixed use developments, and encourage multiple benefits from the use of land in urban and rural areas, recognising that some open land can perform many functions. • Encourage the effective use of land by reusing land that has been previously developed (brownfield land), provided that it is not of high environmental value. • Minimise coastal erosion. Baseline review: • The need to protect and enhance geological features of importance (including geological SSSIs) and maintain and enhance soil function and health. • The need to manage the land more holistically at the catchment level, benefitting landowners, other stakeholders, the environment and sustainability of natural resources (including water resources). • The Drought Plan is unlikely to affect land-use as no permanent development will be required to meet the objectives of the plan.

SEA Topic	The key sustainability issues arising from the review of the plans, programmes and policies review and baseline
Air and climate	Plans, programmes and policies review: • Reduce greenhouse gas emissions. Key targets are to reduce the UK's greenhouse gas emissions by at least 80% (relative to 1990 levels) by 2050. • Reduce the effects of air pollution on ecosystems. • Improve overall air quality. • Sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. • Minimise energy consumption, support the use of sustainable/renewable energy and improve resilience to climate change. • Build in adaption to climate change to future planning and consider the level of urgency of associated risks of climate change impacts accordingly. • Need for adaptive measures to respond to likely climate change impacts on water supply and demand. Baseline review: • The need to reduce air pollutant and greenhouse emissions and limit air emissions to comply with air quality standards. • The need to reduce greenhouse gas emissions (industrial processes and transport). • The need to adapt to the impacts of climate change, for example through sustainable water resource management, water use efficiencies, specific aspects of natural ecosystems (e.g. connectivity) as well as accommodating potential opportunities afforded by climate change.
Archaeology and cultural heritage	Plans, programmes and policies review: • Built development in the vicinity of historic buildings and Scheduled Monuments could have implications for the setting and/or built fabric and cause damage to any archaeological deposits present on the site. • Built development in the vicinity of historic buildings could have implications for the setting and/or built fabric. • Ensure active management of the region's environmental and cultural assets. • Ensure effects resulting from changes to water level (surface or sub-surface) on all historical and cultural assets are avoided. Consider effects on important wetland areas with potential for paleo-environmental deposits. • Promote the conservation and enhancement of the historic environment, including the promotion of heritage and landscape as central to the culture of the region and conserve and enhance distinctive characteristics of landscape and settlements. • Conserve and enhance the historic environment, heritage assets and their settings. • Protect, enhance and manage the character and appearance of historic and cultural assets, and their settings, including maintaining and strengthening local distinctiveness and sense of place. Baseline review: • The need to conserve or enhance sites of archaeological importance and cultural heritage interest, and their settings, particularly those which are sensitive to the water environment.
Landscape and visual	Plans, programmes and policies review:

SEA Topic	The key sustainability issues arising from the review of the plans, programmes and policies review and baseline
	• Protection and enhancement of landscape (including designated landscapes, landscape character, distinctiveness and the countryside) • Abstraction and low river flows could negatively affect landscape and visual amenity. • Take account of the different roles and character of different areas, promoting the vitality of main urban areas, protecting the Green Belts around them, recognising the intrinsic character and beauty of the countryside and supporting thriving rural communities within it. • Enhance the value of the countryside by protecting the natural environment for this and future generations. • Improve access to valued areas of landscape character in sustainable ways to enhance its enjoyment and value by visitors and stakeholders. Baseline review: • The need to protect and improve the natural beauty of the region's AONBs and other areas of natural beauty. • The need to protect and improve the character of landscapes and townscapes.

Appendix F: Assessment Tables

This appendix presents the SEA assessment tables for all supply and demand management measures contained in Bristol Water's Drought Plan.

Table F1: Honeyhurst and Rodney Stoke (Well Head) abstraction (also referred to a Honeyhurst Well)

Topic	SEA objective	Potential residual effect on sensitive receptors (assuming good practice construction methods)	Scale of effect: (Small/ Medium/ Large)	Certainty of effect (Low / Medium/ High)	Duration (short/ medium /long term)	Permanence of effect (permanent/ temporary)	Magnitude of effect (Low / Medium/ High)	Value/ sensitivity of receptor (Low / Medium/ High)	Residual Adverse Effect	Residual Beneficial Effect
Biodiversity, fauna and flora	1.1 To conserve and enhance biodiversity, including designated sites of nature conservation interest and protected habitats and species and to enhance natural capital.	This measure would involve the construction of a new pumping station at the Honeyhurst Well site and the construction of a new 4.2km 300mm diameter pipeline to Cheddar Water Treatment works. The potential for effects on the Mendip Limestone Grasslands SAC, Somerset Levels and Moors SPA and Ramsar, Mendip Woodlands SAC (approximately 1km to the east) and North Somerset and Mendip Bats SAC (2.9km north of the route of the pipeline) were considered in HRA screening. The assessment identified no Likely Significant Effects from implementation of this drought plan measure in all cases. However, specific construction mitigation measures were highlighted with respect to the pipeline construction in relation to the Mendip Woodlands SAC, North Somerset and Mendip Bats SAC and Somerset Levels and Moors SPA. Cheddar Reservoir is designated as a SSSI and supports large numbers of wildfowl, eleven species of which occur regularly, it may also be used as a roost site by interest features of the Somerset Levels and Moors SPA. Construction of the new pipeline is not expected to impact the SSSI as the pipeline route at its nearest point is located approximately roughly 600m away. Construction mitigation measures to avoid noise and vibration effects will be put in place. The pipeline crosses many roads and the felling of some trees may be required: protected species surveys should be undertaken where this is required. Great Crested Newt surveys would also be required as there are 24 ponds within 500m of the proposed pipeline route. The Rodney Stoke NNR/SSSI is an area of woodland that lies approximately 1km to the east of the abstraction well site. Draycott Sleights SSSI is located approximately 1km north-east of the abstraction well site: this SSSI supports extensive areas of traditionally managed species-rich unimproved calcareous grassland. Construction works would not be expected to have direct effects on these two designated sites as they are located on the Mendip Hills, elevated above the Honeyhurst Well site. The operation of the pumping station and transfer pipeline is not expected to have any effects on sites that are important for biodiversity. The abstraction would be from the Wells WFD groundwater body (GB40902G804700). The abstraction will not directly affect the flow or water quality of the River Axe and surrounding tributaries, therefore there is little evidence to suggest that operation of this Drought Plan measure will result in an adverse ecological impact. There is a very low risk that the reinstated abstraction will have adverse impact on the River Axe and its WFD ecological status; this will need to be further assessed and confirmed through monitoring to demonstrate 'no deterioration' under the WFD as a result of bringing this source back into supply.	Small	Medium	Short	Temporary	Low	High	Moderate adverse	None
	1.2 To avoid introducing or spreading INNS.	The risk of spreading invasive species is considered low as the source water is groundwater which will be piped to an existing raw water reservoir. Impacts on the River Axe are considered negligible and consequently the drought plan measure is unlikely to create new hydrological pathways that might enable the spread of aquatic INNS.	Small	High	Short	Temporary	Low	High	Negligible adverse	None

Topic	SEA objective	Potential residual effect on sensitive receptors (assuming good practice construction methods)	Scale of effect: (Small/ Medium/ Large)	Certainty of effect (Low / Medium/ High)	Duration (short/ medium /long term)	Permanence of effect (permanent/ temporary)	Magnitude of effect (Low / Medium/ High)	Value/ sensitivity of receptor (Low / Medium/ High)	Residual Adverse Effect	Residual Beneficial Effect
Population and human health	2.1 To protect and enhance health and well-being (including raising awareness of the importance and value of the water environment for health and well-being).	Implementation of the drought plan measure will maintain water resources within Cheddar Reservoir (2.4 Ml/d) which is essential to maintain public water supplies during a period of drought. The measure would require the construction of a pumping station and pipeline (4.2km) to transfer the water from Honeyhurst Well to Cheddar Water Treatment Works. This may result in some impact during construction in term of noise, air pollution and traffic disruption. The impact would be short term and temporary, and the residual effect is therefore considered to be no more than Minor adverse.	Medium	Medium	Short	Temporary	Low (beneficial) Low (adverse)	High (beneficial) Medium (adverse)	Minor adverse	Moderate beneficial
	2.2 To protect and enhance the water environment for other users including recreation, tourism and navigation, as well as terrestrial recreational resources (including National Trails and Public Rights of Way).	The construction of the new pipeline could cause temporary disruption to public rights of way over the short term. These effects would be mitigated as far as possible, such as by footpath diversions and screening. In operation, the abstraction is not anticipated to directly affect the flow or water quality of any watercourses, therefore there is little evidence to suggest that operation of the well abstraction will result in adverse effects to recreation.	Small	Medium	Short	Temporary	Low	Medium	Minor adverse	None
	2.3 To promote a sustainable economy with good access to essential services, including a resilient, high quality and affordable supply of water.	This drought plan measure would maintain Cheddar Reservoir water levels at a high level for longer which has the potential to minimise adverse effects of natural drought to any businesses reliant on water supplies from Cheddar Reservoir.	Small	Medium	Short	Temporary	Low	Medium	None	Minor beneficial
Material assets and resource use	3.1 To reduce, and make more efficient, the domestic, industrial and commercial consumption of resources, minimise the generation of waste, encourage its re-use and eliminate waste sent to landfill.	The drought plan measure entails the construction of a pipeline and a pumping station. Therefore some modest material use for construction is required. Limited opportunities for re-use or recycling of waste materials have been identified, but operational use will involve relatively low energy use (indicated by proxy of operational carbon).	Small	High	Short	Temporary	Low	Medium	Minor adverse	None
	3.2 To promote and secure the efficient and sustainable use of water to ensure resilient water supplies for people and businesses.	No opportunities to promote the sustainable management of natural resources were identified.	N/a	N/a	N/a	N/a	N/a	N/a	N/a	N/a
Water	4.1 To avoid adverse impact on surface and groundwater levels and flows, including when this impacts on habitats.	Honeyhurst Well source is licensed for abstraction at up to 4.11Ml/d as an annual average, but likely to only provide up to around 2.4Ml/d in a dry year (annual average value). The Honeyhurst Well abstracts water from the Wells WFD groundwater body (GB40902G804700) which is of good quantitative and chemical status. As it is at Good status for the WFD quantitative dependent surface water body status test, the EA believe there is restricted water available for licensing at Q95 flows (i.e. low flow conditions) and it is already a licenced abstraction; it is therefore considered that there is a low risk of the reinstated abstraction having a significant impact on the dependent surface water body (River Axe) or on the Wells groundwater body. A monitoring programme will be required to demonstrate 'no deterioration' to the groundwater and surface water under the WFD as a result of bringing this source back into supply.	Medium	Medium	Short	Temporary	Medium	Low	Minor adverse	None
	4.2 To protect and enhance surface and groundwater quality and protect and enhance estuarine waterbodies.	There may be localised water quality impacts from the construction of the pipeline but construction good practice methods should ensure no long term or significant impacts on the water environment. There is a low risk that the reinstated abstraction will have an effect on the water quality of the River Axe. The significance of impact is therefore considered to be negligible, however this will need to be further assessed and confirmed through monitoring to demonstrate 'no deterioration' under the WFD as a result of bringing this source back into supply.	Small	Low	Short	Temporary	Low	Medium	Minor adverse	None

Topic	SEA objective	Potential residual effect on sensitive receptors (assuming good practice construction methods)	Scale of effect: (Small/ Medium/ Large)	Certainty of effect (Low / Medium/ High)	Duration (short/ medium /long term)	Permanence of effect (permanent/ temporary)	Magnitude of effect (Low / Medium/ High)	Value/ sensitivity of receptor (Low / Medium/ High)	Residual Adverse Effect	Residual Beneficial Effect
	4.3 To ensure appropriate and sustainable management of abstractions to maintain water supplies whilst protecting ecosystem functions and services that rely on water resources	The measure involves use of a pre-existing abstraction licence and therefore impacts to other water users are unlikely. The WFD Wells groundwater body is of good quantitative status and the EA licensing strategy identifies it as restricted water available for licensing at Q95 flows (i.e. low flow conditions); it is therefore considered that there is low risk of the reinstated abstraction having a significant impact on dependent ecosystems. A monitoring programme will be required to demonstrate 'no deterioration' under the WFD as a result of bringing this source back into supply. The route of the pipeline is within 50m of two small groundwater abstractions. Good construction management practices are required to ensure no impact on water quality or water availability for the users of these groundwater sources.	Small	Medium	Short	Temporary	Low	Low	Negligible adverse	None
Soil, geology and land use	5.1 To protect and enhance geology, geomorphology and the quality and quantity of soils.	The construction of the transfer pipeline would have an adverse effect on good and versatile soil. However, this would be temporary, limited to a narrow corridor of development and with the land use and soil cover restored following construction. Construction works at the Honeyhurst Well site would involve the clearing of the site and setting up trial pits. This would, in effect, involve the re-use of a brownfield site. During the operation of the scheme groundwater levels will be lowered, which may affect paleoenvironmental deposits, such as the peat adjacent to the site. The peat may already be adversely affected by natural drought conditions. The option may delay the recovery of the groundwater levels. The presence of paleoenvironmental deposits within the zone of influence of the groundwater abstraction should be given full consideration and assessment in subsequent assessments prior to implementing the option (e.g. an EIA) to ensure that harm is avoided. Residual effects are assessed as Minor Adverse assuming these more detailed investigations are carried out and the appropriate mitigation measures employed where required in consultation with Historic England.	Medium	High	Short	Temporary	Low	Medium	Minor adverse	None
Air and Climate	6.1 To reduce air pollutant emissions.	The drought plan measure will result in minor increases in air emissions associated with construction of the pipeline and the pumping of water from Honeyhurst Well to Cheddar Water Treatment Works (up to 2.4 Ml/d).	Small	High	Short	Temporary	Low	Medium	Minor adverse	None
	6.2 To reduce greenhouse gas emissions.	There would be a notable carbon effect during construction equivalent to 1,583 tonnes CO2e, principally due to carbon embodied in construction materials. Operational carbon consumption is estimated at around 108 tonnes CO2e/a associated with water pumping and water treatment.	Small	High	Short	Temporary	Medium	Medium	Moderate adverse	None
	6.3 To adapt and improve resilience to the threats of climate change.	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 option will provide up to 2.4 Ml/d of additional water resource under a period of extreme drought.	Medium	High	Short	Temporary	Medium	Medium	None	Moderate beneficial
Archaeology and cultural heritage	7.1 To conserve and enhance the historic environment, heritage assets and their settings and protect archaeologically important sites.	As assessment was undertaken by consultants (Black & Veatch) in 2009 of the proposed, provisional pipeline route. The route was assessed for the proximity to a number of designated sites and scheduled monuments, for example the route of the pipeline would be within 250m of a Scheduled Monument (Roman settlement site, Anglo-Saxon and Norman royal place and St Columbanus' Chapel) but construction is not anticipated to affect these sites through careful routing of the pipeline in this area. The local area also has a number of Historic Environment Records in the local area - those in	Small	Medium	Short	Temporary	Low	Medium	Minor adverse	None

Topic	SEA objective	Potential residual effect on sensitive receptors (assuming good practice construction methods)	Scale of effect: (Small/ Medium/ Large)	Certainty of effect (Low / Medium/ High)	Duration (short/ medium /long term)	Permanence of effect (permanent/ temporary)	Magnitude of effect (Low / Medium/ High)	Value/ sensitivity of receptor (Low / Medium/ High)	Residual Adverse Effect	Residual Beneficial Effect
		closest proximity to the proposed pipeline route include a roman salt site and w arping drains. There may also be a presence of historic remains in w aterlogged conditions. During the implementation of the drought measure, groundw ater levels would naturally be very low and therefore the measure is not likely to directly affect any assets w hich may be present. How ever, the drought measure may affect the recovery of groundwater levels. The presence of know n and unknown historic remains along the route of the pipeline and w ithin the zone of influence of the groundw ater abstraction should be given full consideration and assessment in subsequent assessments (e.g. EIA) to ensure harm is avoided. Residual effects are assessed as Minor Adverse assuming these more detailed investigations are carried out and the appropriate mitigation measures employed w here required in consultation w ith Historic England.								
Landscape and visual amenity	8.1 To protect, enhance the quality of and improve access to designated and undesignated landscapes, tow nscapes and the countryside.	Due to the construction requirements there w ill be some temporary adverse effects on visual amenity during construction as a result. Mitigation measures (such as avoidance, screening and information boards) w ould lessen these effects, w hich are temporary in nature. How ever, the relatively small construction site w ill be visible from the Mendip Hills AONB (elevated above the construction site). Once operational, no effects are anticipated on landscapes or visual amenity.	Small	High	Short	Temporary	Low	High	Moderate adverse	None

Table F2: Appeals to customers for restraint in water use

Topic	SEA objective	Potential residual effect on sensitive receptors (assuming good practice construction methods)	Scale of effect: (Small/ Medium/ Large)	Certainty of effect (Low / Medium/ High)	Duration (short/ medium /long term)	Permanence of effect (permanent/ temporary)	Magnitude of effect (Low / Medium/ High)	Value/ sensitivity of receptor (Low / Medium/ High)	Residual Adverse Effect	Residual Beneficial Effect
Biodiversity, fauna and flora	1.1 To conserve and enhance biodiversity, including designated sites of nature conservation interest and protected habitats and species and to enhance natural capital.	The appeals for restraint will be communicated through the media, radio and new spaper advertisements and other publicity channels. This measure w ill have no adverse impacts on biodiversity, flora or fauna, or designated sites of nature conservation interest but the measure w ill reduce consumer demand for w ater and thereby reduce the requirement for abstraction from Bristol Water's sources, with the potential for positive impacts on flow sensitive habitats/species.	Moderate	Medium	Short-term	Temporary	Low (beneficial)	Medium	None	Minor beneficial
	1.2 To avoid introducing or spreading INNS.	The appeals for restraint are considered to have no impact on avoiding the introduction or spreading of INNS, w ith reduced abstraction requirements leaving more w ater in river systems.	n/a	n/a	n/a	n/a	n/a	n/a	None	None
Population and human health	2.1 To protect and enhance health and w ell-being (including raising aw areness of the importance and value of the w ater environment for health and w ell-being).	The appeals for restraint campaign w ill result in w ater savings (estimated at 1% of total household demand) w hich w ill contribute tow ards improving the security of supply for customers in Bristol Water's supply region. The appeals for restraint campaign w ill also help raise aw areness of the importance and value of w ater environment for health and w ell-being.	Medium	High	Short-term	Temporary	Low (beneficial)	High	None	Moderate beneficial
	2.2 To protect and enhance the w ater environment for other users including recreation, tourism and navigation, as w ell as terrestrial recreational resources (including National Trails and Public Rights of Way).	No impacts on recreation, tourism or navigation are anticipated as a result of the appeals for restraint in w ater use.	n/a	n/a	n/a	n/a	n/a	n/a	None	None

	2.3 To promote a sustainable economy with good access to essential services, including a resilient, high quality and affordable supply of water.	The appeals for restraint campaign will result in water savings which will contribute towards improving the security of water supply for businesses in the region, therefore protecting the local economy.	Medium	Medium	Short-term	Temporary	Low (beneficial)	Moderate	None	Moderate beneficial
Material assets and resource use	3.1 To reduce, and make more efficient, the domestic, industrial and commercial consumption of resources, minimise the generation of waste, encourage its re-use and eliminate wastesent to landfill.	The appeals for restraint campaign will not involve any increased material resource use. This measure will reduce the amount of water used in the region. It will not involve any increased waste production.	Medium	Medium	Short-term	Temporary	Low (beneficial)	Medium	None	Minor beneficial
	3.2 To promote and secure the efficient and sustainable use of water to ensure resilient water supplies for people and businesses.	The appeals for restraint campaign will result in promoting the sustainable management of natural resources including efficient and sustainable use of water, as well as helping to maintain essential water supplies to homes and businesses.	Medium	Medium	Short-term	Temporary	Low (beneficial)	High	None	Moderate beneficial
Water	4.1 To avoid adverse impact on surface and groundwater levels and flows, including when this impacts on habitats.	The appeals for restraint campaign are considered to have a beneficial impact on the water environment, acknowledging that reduced consumer demand for water will result in reduced requirement for abstraction from water sources in the Bristol Water operating area.	Medium	Medium	Short-term	Temporary	Low (beneficial)	Medium	None	Minor beneficial
	4.2 To protect and enhance surface and groundwater quality and protect and enhance estuarine waterbodies.	Reductions in demand for water due to this drought plan measure would result in reduced requirement for abstraction from Bristol Water's sources, reducing associated abstraction impacts on surface water and groundwater quality in drought conditions.	Medium	Medium	Short-term	Temporary	Low (beneficial)	Medium	None	Minor beneficial
	4.3 To ensure appropriate and sustainable management of abstractions to maintain water supplies whilst protecting ecosystem functions and services that rely on water resources	The appeals for restraint campaign is considered to have beneficial impact on water abstraction management, acknowledging that reduced consumer demand for water will result in reduced requirement for abstraction at Bristol Water's sources.	Medium	Medium	Short-term	Temporary	Low (beneficial)	Medium	None	Minor beneficial
Soil, geology and land use	5.1 To protect and enhance geology, geomorphology and the quality and quantity of soils.	No impacts on geology, geomorphology and quality/quantity of soils are anticipated as a result of the appeals for restraint in water use.	n/a	n/a	n/a	n/a	n/a	n/a	None	None
Air and Climate	6.1 To reduce air pollutant emissions.	No impacts on air quality are anticipated as a result of the appeals for restraint in water use.	n/a	n/a	n/a	n/a	n/a	n/a	None	None
	6.2 To reduce greenhouse gas emissions.	The appeals for restraint campaign will not involve any increased resource use, or increased greenhouse gas emissions.	n/a	n/a	n/a	n/a	n/a	n/a	None	None
	6.3 To adapt and improve resilience to the threats of climate change.	Demand management measures are a key component of Bristol Water's Drought Plan. The Plan aims to ensure resilience of water supplies to drought which may become more prevalent due to climate change.	Small	High	Short-term	Temporary	Low (beneficial)	High	None	Minor beneficial
Archaeology and cultural heritage	7.1 To conserve and enhance the historic environment, heritage assets and their settings and protect archaeologically important sites.	The appeals for restraint campaign is considered to have no direct impact on the historic environment, heritage assets and their settings and archaeologically important sites. There is the potential for reduced consumer demand for water to result in reduced requirement for abstraction at Bristol Water's sources, potentially reducing any impacts of drought-related effects on archaeology and cultural heritage assets.	Medium	Medium	Short-term	Temporary	Low (beneficial)	Low	None	Negligible beneficial
Landscape and visual amenity	8.1 To protect, enhance the quality of and improve access to designated and undesignated landscapes, townscapes and the countryside.	The appeals for restraint campaign is considered to have no direct impact on landscape and visual amenity or any changes to access to the countryside or open space. There is the potential for reduced consumer demand for water to result in reduced requirement for abstraction at Bristol Water's sources, potentially reducing any impacts of drought-related landscape or visual impacts.	Medium	Medium	Short-term	Temporary	Low (beneficial)	Low	None	Negligible beneficial

Table F3: Temporary Use Ban

Topic	SEA objective	Potential residual effect on sensitive receptors (assuming good practice construction methods)	Scale of effect: (Small/ Medium/ Large)	Certainty of effect (Low / Medium/ High)	Duration (short/ medium /long term)	Permanence of effect (permanent/ temporary)	Magnitude of effect (Low / Medium/ High)	Value/ sensitivity of receptor (Low / Medium/ High)	Residual Adverse Effect	Residual Beneficial Effect
Biodiversity, fauna and flora	1.1 To conserve and enhance biodiversity, including designated sites of nature conservation interest and protected habitats and species and to enhance natural capital.	This temporary use ban is considered to have no impact on biodiversity, flora and fauna, other than to acknowledge that reduced consumer demand for water will result in reduced requirement for abstraction from Bristol Water's sources and, therefore, has the potential for positive impacts on flow, sensitive habitats/species etc. The ban would prevent the refilling of domestic ponds which may result in some adverse impact, but the biodiversity of domestic ponds is considered to be low overall.	Medium	Moderate	Short-term	Temporary	Low (beneficial)	Medium	None	Minor beneficial
	1.2 To avoid introducing or spreading INNS.	This temporary use ban is very unlikely to introduce or spread INNS, with reduced abstraction requirements leaving more water in river systems.	n/a	n/a	n/a	n/a	n/a	n/a	None	None
Population and human health	2.1 To protect and enhance health and well-being (including raising awareness of the importance and value of the water environment for health and well-being).	This temporary use ban will provide water savings which will contribute towards improving security of supply of water in the Bristol Water supply region. Drinking water quality will not be affected by the restrictions and there will be no impact on *essential water uses* that are necessary to maintain public health and well-being of the population served by Bristol Water.	Medium	High	Short-term	Temporary	Low (beneficial)	High	None	Moderate beneficial
	2.2 To protect and enhance the water environment for other users including recreation, tourism and navigation, as well as terrestrial recreational resources (including National Trails and Public Rights of Way).	Reducing the demand for water is unlikely to have any impacts for recreation, tourism and navigation. There may be some domestic recreational impacts, for example not being able to refill or maintain a domestic swimming pool or water gardens with a hosepipe or sprinkler.	High	Low	Short-term	Temporary	Medium (adverse)	Low	Minor adverse	None
	2.3 To promote a sustainable economy with good access to essential services, including a resilient, high quality and affordable supply of water.	The principal impact will be on domestic customers as the ban would preclude use of water for those use categories set out under the temporary ban powers. The temporary use ban would include an exemption for commercial businesses in respect of the washing of private cars and washing of windows. The ban may indirectly adversely impact businesses which benefit from the sale of certain water-using appliances, such as hosepipes and sprinklers.	Medium	Moderate	Short-term	Temporary	Low (adverse)	Medium	Minor adverse	None
Material assets and resource use	3.1 To reduce, and make more efficient, the domestic, industrial and commercial consumption of resources, minimise the generation of waste, encourage its re-use and eliminate wastes ent to landfill.	The ban will reduce the demand for water in the region, improving the efficiency of existing water resource use. It will not result in any increase in the generation of waste.	Medium	Moderate	Medium-term	Temporary	Low (beneficial)	Medium	None	Minor beneficial
	3.2 To promote and secure the efficient and sustainable use of water to ensure resilient water supplies for people and businesses.	The ban will reduce the demand for water in the region, therefore providing security of essential water supplies and helping to protect the maintenance of essential water supplies to people and businesses.	Moderate	High	Medium-term	Temporary	Low (beneficial)	Medium	None	Minor beneficial
Water	4.1 To avoid adverse impact on surface and groundwater levels and flows, including when this impacts on habitats.	The ban will not directly result in, or modify any abstraction (surface water or groundwater). Reduction in demand for demand for water will result in reduced requirement for abstraction from Bristol Water's sources, reducing the impacts on water levels and river flows in drought conditions.	Medium	Moderate	Medium-term	Temporary	Low	Medium	None	Minor beneficial
	4.2 To protect and enhance surface and groundwater quality and protect and enhance estuarine waterbodies.	Reductions in demand for water would result in reduced requirement for increased abstraction from Bristol Water's sources, reducing associated impacts on surface water and groundwater quality during drought conditions.	Low	Low	Short-term	Temporary	Low (beneficial)	Medium	None	Minor beneficial
	4.3 To ensure appropriate and sustainable management of abstractions to maintain water supplies whilst protecting ecosystem functions and services that rely on water resources	Reduction in demand for demand for water will result in reduced requirement for abstraction from Bristol Water's sources, helping provide some protection for water-dependent ecosystems.	Medium	Moderate	Medium-term	Temporary	Low (beneficial)	Medium	None	Minor beneficial
Soil, geology and land use	5.1 To protect and enhance geology, geomorphology and the quality and quantity of soils.	No impacts on geology, geomorphology and quality/quantity of soils are anticipated as a result of the temporary use ban.	n/a	n/a	n/a	n/a	n/a	n/a	None	None
Air and Climate	6.1 To reduce air pollutant emissions.	No impacts on air quality are anticipated as a result of the ban.	n/a	n/a	n/a	n/a	n/a	n/a	None	None
	6.2 To reduce greenhouse gas emissions.	The ban will not involve any increased resource use, or increased greenhouse gas emissions.	n/a	n/a	n/a	n/a	n/a	n/a	None	None
	6.3 To adapt and improve resilience to the threats of climate change.	Demand management measures are a key component of Bristol Water's Drought Plan. The Plan aims to ensure resilience of water supplies to drought which may become more frequent due to climate change.	Small	High	Long-term	Permanent	Low (beneficial)	High	None	Moderate beneficial
Archaeology and cultural heritage	7.1 To conserve and enhance the historic environment, heritage assets and their settings and protect archaeologically important sites.	The ban is considered to have no direct impact on the historic environment, heritage assets and their settings and archaeologically important sites. There is the potential for reduced consumer demand for water to result in reduced requirement for abstraction from Bristol Water's sources, potentially reducing	Medium	Moderate	Medium-term	Temporary	Low (beneficial)	Low	None	Negligible beneficial

		the magnitude of any drought-related effects on archaeology and cultural heritage assets.								
Landscape and visual amenity	8.1 To protect, enhance the quality of and improve access to designated and undesignated landscapes, tow nscapes and the countryside.	The ban is considered to have no direct impact on landscape and visual amenity or any changes to access to the countryside or open space. There is the potential for reduced consumer demand for w ater to result in reduced requirement for abstraction from Bristol Water's sources, potentially reducing the magnitude of any drought-related effects on landscape or visual amenity.	Medium	Moderate	Medium-term	Temporary	Low (beneficial)	Low	None	Negligible beneficial

Table F4: Non-Essential Use Ban

Topic	SEA objective	Potential residual effect on sensitive receptors (assuming good practice construction methods)	Scale of effect: (Small/ Medium/ Large)	Certainty of effect (Low / Medium/ High)	Duration (short/ medium /long term)	Permanence of effect (permanent/ temporary)	Magnitude of effect (Low / Medium/ High)	Value/ sensitivity of receptor (Low / Medium/ High)	Residual Adverse Effect	Residual Beneficial Effect
Biodiversity, fauna and flora	1.1 To conserve and enhance biodiversity, including designated sites of nature conservation interest and protected habitats and species and to enhance natural capital.	The ban is considered to have no impact on biodiversity, flora and fauna, other than to acknowledge that reduced consumer demand for water will result in reduced requirement for abstraction from Bristol Water's sources and, therefore, potential for positive impacts on flow, sensitive habitats/species etc.	Medium	Medium	Short-term	Temporary	Low (beneficial)	Medium	None	Minor beneficial
	1.2 To avoid introducing or spreading INNS.	The ban is likely to have no impact on avoiding the introduction or spreading of INNS, with reduced abstraction requirements leaving more water in river systems.	n/a	n/a	n/a	n/a	n/a	n/a	None	None
Population and human health	2.1 To protect and enhance health and well-being (including raising awareness of the importance and value of the water environment for health and well-being).	The ban will provide water savings which will contribute towards improving security of supply of water in the Bristol Water supply region. Drinking water quality will not be affected by the restrictions and there will be no impact on *essential water uses* that are necessary to maintain public health and well-being of the population served by Bristol Water.	Medium	Medium	Short-term	Temporary	Low (beneficial)	High	None	Moderate beneficial
	2.2 To protect and enhance the water environment for other users including recreation, tourism and navigation, as well as terrestrial recreational resources (including National Trails and Public Rights of Way).	There may be potential for minor impacts upon recreational opportunity due to restrictions on filling of swimming pools, watering of sports pitches, etc. There may be minor impacts associated with the setting of tourist attractions, for example water features and parks/gardens associated with popular tourist sites.	Medium	Low	Short-term	Temporary	Low (adverse)	Medium	Minor adverse	None
	2.3 To promote a sustainable economy with good access to essential services, including a resilient, high quality and affordable supply of water.	The ban carries the risk of some economic impact on businesses that benefit directly or indirectly from certain water uses that would be prohibited under the ban (e.g. window cleaning businesses, some sports and leisure facilities, garden and landscape orientated businesses). The ban may result in some business loss if the water-related operations have to be suspended, and would only be applied by Bristol Water as a last resort.	Medium	Medium	Short-term	Temporary	Medium (adverse)	High	Major Adverse	None
Material assets and resource use	3.1 To reduce, and make more efficient, the domestic, industrial and commercial consumption of resources, minimise the generation of waste, encourage its re-use and eliminate wastesent to landfill.	The ban will reduce the demand for water in the region, improving the efficiency of existing water resource use. It will not result in any increase in the generation of waste.	Medium	Low	Short-term	Temporary	Low (beneficial)	Medium	None	Minor beneficial
	3.2 To promote and secure the efficient and sustainable use of water to ensure resilient water supplies for people and businesses.	The ban will reduce the demand for water in the region, therefore providing security of essential water supplies and helping to protect the maintenance of essential water supplies to people and businesses.	Medium	Medium	Short-term	Temporary	Low (beneficial)	Medium	None	Minor beneficial
Water	4.1 To avoid adverse impact on surface and groundwater levels and flows, including when this impacts on habitats.	The ban will not directly result in, or modify any abstraction (surface water or groundwater). Reduction in demand for water will result in a reduced requirement for abstraction at Bristol Water's sources, minimising impacts on water levels and river flows in drought conditions.	Low	Low	Short-term	Temporary	Low (beneficial)	Medium	None	Minor beneficial
	4.2 To protect and enhance surface and groundwater quality and protect and enhance estuarine waterbodies.	Reductions in demand for water would result in reduced requirement for increased abstraction from Bristol Water's sources, reducing associated impacts on surface water and groundwater quality during drought conditions.	Low	Low	Short-term	Temporary	Low (beneficial)	Medium	None	Minor beneficial
	4.3 To ensure appropriate and sustainable management of abstractions to maintain water supplies whilst protecting ecosystem functions and services that rely on water resources	Reduction in demand for demand for water will result in reduced requirement for abstraction from Bristol Water's sources, helping provide some protection for water-dependent ecosystems.	Low	Low	Short-term	Temporary	Low (beneficial)	Medium	None	Minor beneficial
Soil, geology and land use	5.1 To protect and enhance geology, geomorphology and the quality and quantity of soils.	No impacts on geology, geomorphology and quality/quantity of soils are anticipated as a result of the drought order to ban non-essential use.	n/a	n/a	n/a	n/a	n/a	n/a	None	None
Air and Climate	6.1 To reduce air pollutant emissions.	No impacts on air quality are anticipated as a result of the ban.	n/a	n/a	n/a	n/a	n/a	n/a	None	None
	6.2 To reduce greenhouse gas emissions.	The ban will not involve any increased resource use, or increased greenhouse gas emissions.	n/a	n/a	n/a	n/a	n/a	n/a	None	None
	6.3 To adapt and improve resilience to the threats of climate change.	Demand management measures are a key component of Bristol Water's Drought Plan. The Plan aims to ensure resilience of water supplies to drought which may become more frequent due to climate change.	Low	Low	Short-term	Temporary	Low (beneficial)	High	None	Moderate beneficial
Archaeology and cultural heritag	7.1 To conserve and enhance the historic environment, heritage assets and their settings and protect archaeologically important sites.	There may be minor impacts associated with the setting of some heritage assets, for example, visual impacts on registered parks and gardens and /or the grounds of listed buildings due to the ban on watering of gardens and	Low	Low	Short-term	Temporary	Low (beneficial)	Low	Minor adverse	Negligible beneficial

Topic	SEA objective	Potential residual effect on sensitive receptors (assuming good practice construction methods)	Scale of effect: (Small/ Medium/ Large)	Certainty of effect (Low/ Medium/ High)	Duration (short/ medium /long term)	Permanence of effect (permanent/ temporary)	Magnitude of effect (Low/ Medium/ High)	Value/ sensitivity of receptor (Low/ Medium/ High)	Residual Adverse Effect	Residual Beneficial Effect
		grounds. Notwithstanding these impacts, the ban is considered unlikely to have any direct impact on the historic environment, heritage assets and archaeologically important sites. There is the potential for reduced consumer demand for water to result in reduced requirement for abstraction at Bristol Water's sources, potentially reducing the magnitude of any drought-related effects on archaeology and cultural heritage assets.								
Landscape and visual amenity	8.1 To protect, enhance the quality of and improve access to designated and undesignated landscapes, townscapes and the countryside.	There may be some localised effects on townscapes and the setting of some visual amenities due to the ban on watering of gardens and grounds. However, the ban is considered to have no direct impact on landscape and visual amenity or any changes to access to the countryside or open space. There is the potential for reduced consumer demand for water to result in reduced requirement for abstraction at Bristol Water's sources, potentially reducing the magnitude of any drought-related effects on landscape or visual amenity.	Low	Low	Short-term	Temporary	Low (beneficial)	Low	Minor adverse	Negligible beneficial

Table F5: Emergency drought order

Topic	SEA objective	Potential residual effect on sensitive receptors (assuming good practice construction methods)	Scale of effect: (Small/ Medium/ Large)	Certainty of effect (Low / Medium/ High)	Duration (short/ medium /long term)	Permanence of effect (permanent/ temporary)	Magnitude of effect (Low / Medium/ High)	Value/ sensitivity of receptor (Low / Medium/ High)	Residual Adverse Effect	Residual Beneficial Effect
Biodiversity, fauna and flora	1.1 To conserve and enhance biodiversity, including designated sites of nature conservation interest and protected habitats and species and to enhance natural capital.	An emergency drought order is considered to have no impact on biodiversity, flora and fauna, other than to acknowledge that reduced consumer demand for water will result in reduced requirement for abstraction from Bristol Water sources in drought and, therefore, potential for positive impacts on flow, sensitive habitats/species etc.	Medium	Moderate	Short-term	Temporary	Low (beneficial)	Medium	None	Minor beneficial
	1.2 To avoid introducing or spreading INNS.	An emergency drought order is not likely to have an impact on avoiding the introduction or spreading of INNS, with reduced abstraction requirements leaving more water in river systems.	n/a	n/a	n/a	n/a	n/a	n/a	None	None
Population and human health	2.1 To protect and enhance health and well-being (including raising awareness of the importance and value of the water environment for health and well-being).	An emergency drought order will provide water savings which will contribute towards maintaining the provision of water supplies for priority essential uses, preventing a complete loss of supply to customers. Drinking water quality may be adversely affected due to the intermittent nature of supplies and there may be a requirement under certain circumstances for customers to boil water for potable uses to protect public health. Customers will face considerable disruption to their daily lives as a result of intermittent supply provision.	Medium	High	Short-term	Temporary	Low (beneficial)	High	Major Adverse	Moderate beneficial
	2.2 To protect and enhance the water environment for other users including recreation, tourism and navigation, as well as terrestrial recreational resources (including National Trails and Public Rights of Way).	Depending on the scale of the drought order restrictions, there could potentially be significant impacts on recreation and tourism, particularly activities that may benefit directly or indirectly from water usage (e.g. swimming pools, sports pitches, the setting of tourist attractions and visual impacts on the grounds of popular tourist sites). Hotels and other holiday/tourist accommodation and camping sites will likely be adversely affected. In the worst case scenario, publicity regarding water restrictions may cause a loss of tourism revenue, as tourists delay or cancel trips to the affected area. Hospitality business is also likely to be adversely affected.	Medium	Moderate	Short-term	Temporary	Medium (adverse)	High	Major adverse	None
	2.3 To promote a sustainable economy with good access to essential services, including a resilient, high quality and affordable supply of water.	Depending on the scale of the required drought order demand restrictions, there could potentially be significant impacts on businesses/economy, particularly those that benefit directly or indirectly from water usage (e.g. window cleaning businesses, sports and leisure facilities, garden and landscape orientated businesses), along with the tourism sector and hospitality sector in particular. There would be an overall adverse impact on the local economy.	Medium	Moderate	Short to medium-term	Temporary to permanent	Medium (adverse)	High	Major adverse	None
Material assets and resource use	3.1 To reduce, and make more efficient, the domestic, industrial and commercial consumption of resources, minimise the generation of waste, encourage its re-use and eliminate waste sent to landfill.	An emergency drought order will reduce the demand for water in the region, thereby reducing water resource use. It will not result in any increase in the generation of waste.	Medium	Moderate	Medium-term	Temporary to permanent	Low (beneficial)	Medium	None	Minor beneficial
	3.2 To promote and secure the efficient and sustainable use of water to ensure resilient water supplies for people and businesses.	The use of an emergency drought order is not consistent with sustainable and secure water supplies for people and businesses, and will cause significant disruption to domestic and commercial life in the Bristol Water region.	Moderate	High	Medium-term	Temporary to permanent	Low (beneficial)	High	Major adverse	None
Water	4.1 To avoid adverse impact on surface and groundwater levels and flows, including when this impacts on habitats.	The drought order will not directly result in, or modify any abstraction (surface water or groundwater). Reduction in demand for water will result in a reduced requirement for abstraction at Bristol Water's sources, minimising impacts on water levels and river flows in drought conditions.	Medium	Moderate	Medium-term	Temporary	Low (beneficial)	Medium	None	Minor beneficial
	4.2 To protect and enhance surface and groundwater quality and protect and enhance estuarine waterbodies.	Reductions in demand for water would result in reduced requirement for increased abstraction from Bristol Water's sources, reducing associated impacts on surface water and groundwater quality during drought conditions.	Low	Low	Short-term	Temporary	Low (beneficial)	Medium	None	Minor beneficial
	4.3 To ensure appropriate and sustainable management of abstractions to maintain water supplies whilst protecting ecosystem functions and services that rely on water resources	Reduction in demand for demand for water will result in reduced requirement for abstraction from Bristol Water's sources, helping provide some protection for water-dependent ecosystems.	Medium	Moderate	Medium-term	Temporary	Low (beneficial)	Medium	None	Minor beneficial
Soil, geology and land use	5.1 To protect and enhance geology, geomorphology and the quality and quantity of soils.	No impacts on geology, geomorphology and quality/quantity of soils are anticipated as a result of the use of an emergency drought order.	n/a	n/a	n/a	n/a	n/a	n/a	None	None
Air and Climate	6.1 To reduce air pollutant emissions.	No impacts on air quality are anticipated as a result of the use of an emergency drought order.	n/a	n/a	n/a	n/a	n/a	n/a	None	None

	6.2 To reduce greenhouse gas emissions.	The use of an emergency drought order will not involve any increased resource use, or increased greenhouse gas emissions.	n/a	n/a	n/a	n/a	n/a	n/a	None	None
	6.3 To adapt and improve resilience to the threats of climate change.	The drought order is a last resort to maintain priority essential water supplies to customers; as such it is not a measure that improves the resilience of the water supply system to climate change threats.	Small	High	Short-term	Temporary	Low (beneficial)	High	Major adverse	Negligible beneficial
Archaeology and cultural heritage	7.1 To conserve and enhance the historic environment, heritage assets and their settings and protect archaeologically important sites.	There may be minor impacts associated with the setting of some heritage assets, for example, visual impacts on registered parks and gardens and /or the grounds of listed buildings due to restrictions on the use of water for any non-essential purposes. Notwithstanding these impacts, the ban is considered unlikely to have any direct impact on the historic environment, heritage assets and archaeologically important sites. There is the potential for reduced consumer demand for water to result in reduced requirement for abstraction at Bristol Water's sources, potentially reducing the magnitude of any drought-related effects on archaeology and cultural heritage assets.	Medium	Moderate	Medium-term	Temporary	Medium (adverse) Low (beneficial)	Low (Adverse) Low (beneficial)	Minor adverse	Negligible beneficial
Landscape and visual amenity	8.1 To protect, enhance the quality of and improve access to designated and undesignated landscapes, townscapes and the countryside.	There may be some localised effects on townscapes and the setting of some visual amenities due to the restrictions on water use for any non-essential purposes. However, the ban is considered to have no direct impact on landscape and visual amenity or any changes to access to the countryside or open space. There is the potential for reduced consumer demand for water to result in reduced requirement for abstraction at Bristol Water's sources, potentially reducing the magnitude of any drought-related effects on landscape or visual amenity.	Medium	Moderate	Medium-term	Temporary	Low (beneficial)	Low	Minor adverse	Negligible beneficial

Table F6: Blagdon Reservoir compensation flow reduction

Topic	SEA objective	Potential residual effect on sensitive receptors (assuming good practice construction methods)	Scale of effect: (Small/ Medium/ Large)	Certainty of effect (Low / Medium/ High)	Duration (short/ medium /long term)	Permanence of effect (permanent/ temporary)	Magnitude of effect (Low / Medium/ High)	Value/ sensitivity of receptor (Low / Medium/ High)	Residual Adverse Effect	Residual Beneficial Effect
Biodiversity, fauna and flora	1.1 To conserve and enhance biodiversity, including designated sites of nature conservation interest and protected habitats and species and to enhance natural capital.	The potential for effects on the Mendip Woodlands SAC, North Somerset and Mendip Bats SAC, Mendip Limestone Grasslands SAC, Chew Valley Lake SPA and Severn Estuary SAC, SPA, Ramsar were considered in HRA screening. The assessment identified no Likely Significant Effects in all cases. Blagdon reservoir is designated for its macrophyte community, in particular the Starry Stonewort, which is a nationally rare species. The drought permit will maintain water levels in Blagdon Reservoir relative to what would occur without the drought permit in operation and therefore no impact is expected on this community. The drought permit would result in a reduction in the compensation flow release from Blagdon Reservoir to the Congresbury Yeo. There would be an associated impact on the river flow /level regime resulting in reduced depth and wetted width of the river which may result in ecological impacts, the impact of which will reduce with increased distance downstream. However, there will be no adverse effects on any designated sites. The key river flow impacts are restricted to a 6km reach from the reservoir to the Iwood flow gauge. The hydrological assessment has identified that at Iwood gauging station the low flow (Q95) is 17.0Ml/d; the drought permit would lead to a 4Ml/d reduction to the Q95 flow (24% reduction), such that flows would be similar to the Q99 flow conditions. At times of moderate and high flows, the hydrological impacts in this river reach would be negligible. Downstream of the Iwood gauging station, the Congresbury Yeo is level controlled and therefore any potential hydrology impacts during low flow periods would be restricted to potential minor changes in water velocity (wetted depth and wetted width are controlled by local level control structures). A reduction in river flow and water quality has the potential to affect the ecological health of the Congresbury Yeo. The river is currently classed as Poor ecological status under the WFD due to the combined status of macrophytes and phytobenthos. Macroinvertebrates are currently classified as High status under WFD but samples taken directly downstream of the reservoir indicate a flow and sediment impact. These impacts are likely to increase during the implementation of the drought permit due to a reduced velocity. A reduction in flow will lead to a reduction in wetted width and depth which will directly reduce the overall habitat availability within the reaches. Fish (currently classed as High status under WFD) may also be affected due to the reduced wetted width. Hydrological impacts include low flows and reduced wetted width. This will reduce the amount of habitat available for fish which will be significant especially for spawning and nursery grounds. The reduction in habitat suitability may affect brown trout survival. Fish surveys in 2011 indicate low densities of juvenile and adult brown trout at the site closest to the reservoir (~1.8km). Overall impacts of water quality deterioration are likely to be low, except locally downstream of consented water quality discharges. Proposed mitigation measures for fish are linked to physical and visual record surveys prior to implementation which would then be ongoing throughout the duration of the drought permit implementation and would encompass areas most at risk from environmental stress such as large shallow areas and immediately downstream of effluent discharges. Mitigation measures, that would be agreed with the Environment Agency prior to implementation, could include the deployment of aeration equipment; undertaking a fish rescue (if considered appropriate) or temporary restoration of normal compensation flow. The reduction in flow under the drought permit is still higher than the normal winter compensation flow and therefore there is the potential that at other	Medium	Medium	Medium	Temporary	Medium (adverse)	Medium	Moderate adverse	None

Topic	SEA objective	Potential residual effect on sensitive receptors (assuming good practice construction methods)	Scale of effect: (Small/ Medium/ Large)	Certainty of effect (Low / Medium/ High)	Duration (short/ medium /long term)	Permanence of effect (permanent/ temporary)	Magnitude of effect (Low / Medium/ High)	Value/ sensitivity of receptor (Low / Medium/ High)	Residual Adverse Effect	Residual Beneficial Effect
		times of the year, the river flow is lower than will arise as a result of the drought permit. Considering the drought permit impact on the hydrology and the risk of water quality deterioration in the reach, the effects on macroinvertebrates and fish are considered to be moderate, temporary and reversible.								
	1.2 To avoid introducing or spreading INNS.	Blagdon Lake reservoir is known to contain two non-native Elodea species (Wessex Ecological Consultancy, 2015). The drought permit does not entail the movement of water between sources and does not affect the reservoir itself, therefore the risk of the drought permit implementation increasing the spread of INNS is assessed as very low. A reduction in wetted width and depth in the river reach downstream of the reservoir is likely to increase the growth of any marginal INNS if present.	Small	Low	Short	Temporary	Low (adverse)	Medium	Minor adverse	None
Population and human health	2.1 To protect and enhance health and well-being (including raising awareness of the importance and value of the water environment for health and well-being).	Implementation of the drought permit will help conserve water resources within Blagdon Lake reservoir which is essential to help maintain public water supplies during a period of drought.	Medium	High	Short	Temporary	Low (beneficial)	High	None	Moderate beneficial
	2.2 To protect and enhance the water environment for other users including recreation, tourism and navigation, as well as terrestrial recreational resources (including National Trails and Public Rights of Way).	There are around 9km of public footpaths which run adjacent and intersect the Congresbury Yeo between the reservoir and Iwood flow gauge (the point at which flow impacts are assessed as negligible). The reduction in wetted width and depth will temporarily reduce the recreational and amenity value of this river reach. There may also be temporary angling impacts for Knowle Angling Club who fish the river. However, during a period of drought, the river reach would already be naturally low and angling activities are likely to have already cease prior to the drought permit implementation. The recreation impacts of the drought permit on this river reach are therefore assessed as negligible. The drought permit will maintain water levels within Blagdon Lake reservoir at a higher level for longer and therefore providing a minor benefit, however this is not deemed significant as the water levels would already be very low under drought conditions.	Small	High	Short	Temporary	Low (adverse)	Low	Negligible adverse	None
	2.3 To promote a sustainable economy with good access to essential services, including a resilient, high quality and affordable supply of water.	Implementation of the drought permit will contribute to the maintenance of supply reliability in drought conditions, ensuring a resilient supply for customers and economic activity with no permanent adverse effects on the environment.	Small	Medium	Short	Temporary	Low (adverse) Low (beneficial)	Medium	Minor adverse	Minor beneficial
Material assets and resource use	3.1 To reduce, and make more efficient, the domestic, industrial and commercial consumption of resources, minimise the generation of waste, encourage its re-use and eliminate waste sent to landfill.	There are no construction requirements and therefore no additional materials are required. The drought permit aims to conserve water levels in Blagdon Reservoir, it will not result in additional abstraction and therefore nor will it result in any additional energy consumption or waste produced.	N/a	N/a	N/a	N/a	N/a	N/a	None	None
	3.2 To promote and secure the efficient and sustainable use of water to ensure resilient water supplies for people and businesses.	No opportunities to promote the sustainable management of natural resources were identified for this drought permit.	N/a	N/a	N/a	N/a	N/a	N/a	None	None
Water	4.1 To avoid adverse impact on surface and groundwater levels and flows, including when this impacts on habitats.	The drought permit option will result in a reduced compensation flow of 8.638 Ml/d to a daily flow of 4.6Ml/d between 15th May to 30th November. This is a 47% flow reduction immediately downstream of the reservoir with the percentage impact decreasing with distance downstream from the reservoir with four sewage discharges (Ubley, Blagdon and Butcombe Sewage Treatment Works and a commercial wastewater discharge) and additional tributaries joining further downstream.	Small	High	Short	Temporary	Medium (adverse)	Medium	Moderate adverse	None

Topic	SEA objective	Potential residual effect on sensitive receptors (assuming good practice construction methods)	Scale of effect: (Small/ Medium/ Large)	Certainty of effect (Low / Medium/ High)	Duration (short/ medium /long term)	Permanence of effect (permanent/ temporary)	Magnitude of effect (Low/ Medium/ High)	Value/ sensitivity of receptor (Low / Medium/ High)	Residual Adverse Effect	Residual Beneficial Effect
		The key flow impacts are restricted to a 6km reach downstream of the reservoir to the Iwood flow gauge. The hydrological assessment has identified that at Iwood gauging station the low flow (Q95) is 17.0Ml/d; the drought permit would lead to a 4Ml/d reduction to the Q95 flow (24% reduction), such that flows would be similar to the Q99 flow conditions. At times of moderate and high flows, the hydrological impacts in this river reach would be negligible. Downstream of the Iwood gauging station, the Congresbury Yeo is level controlled and therefore any potential hydrology impacts during low flow periods would be restricted to potential minor changes in water velocity (wetted depth and wetted width are controlled by local level control structures).								
	4.2 To protect and enhance surface and groundwater quality and protect and enhance estuarine waterbodies.	The reduction in compensation flow will result in reduced dilution downstream of the reservoir, in particular the dilution of wastewater discharges from sewage treatment works (Blagdon, Ubley and Butcombe) and a commercial wastewater discharge. The effect of the reduced flows may increase the concentration of parameters such as ammonia, BOD and phosphorus. The impact will diminish with distance downstream from the reservoir as the flow impact decreases. All water quality parameters are currently classified as High status under the WFD apart from orthophosphate which is assessed as Poor status. There may be a low risk that orthophosphate may drop below Poor status. The WFD waterbody (GB109052021640) has an objective to reach Good status by 2027, therefore this temporary drought measure should not affect this long term objective. The significance of the impact is considered to be moderate adverse.	Small	Medium	Short	Temporary	Medium (adverse)	Medium	Moderate adverse	None
	4.3 To ensure appropriate and sustainable management of abstractions to maintain water supplies whilst protecting ecosystem functions and services that rely on water resources	The drought permit will likely have some minor, but temporary adverse impact on water dependent ecosystems in the affected reach. A monitoring programme will be required to demonstrate 'no deterioration' under the WFD as a result of implementing the drought permit. There is one groundwater abstraction near to Congresbury Village. This drought permit will not affect this abstraction due to the distance from the river.	Small	High	Short	Temporary	Low (adverse)	Low	Minor adverse	None
Soil, geology and land use	5.1 To protect and enhance geology, geomorphology and the quality and quantity of soils.	The reduced compensation flow will facilitate some minor temporary sedimentation due to reduced velocities at a time of naturally low river flow due to drought. The river currently suffers from a build-up of soft silts which is likely to be exacerbated to a minor degree by operation of the drought permit. No water-dependent palaeo-environmental features have been identified that might be affected by operation of this drought plan measure.	Medium	High	Short	Temporary	Low (adverse)	Medium	Minor adverse	None
Air and Climate	6.1 To reduce air pollutant emissions.	The drought permit will not result in additional emissions to the atmosphere.	N/a	N/a	N/a	N/a	N/a	N/a	None	None
	6.2 To reduce greenhouse gas emissions.	There is no construction or increased abstraction as a result of this drought permit, therefore no impact on greenhouse gas emissions is expected.	N/a	N/a	N/a	N/a	N/a	N/a	None	None
	6.3 To adapt and improve resilience to the threats of climate change.	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 permit will provide up to 4Ml/d of additional water resources under a period of extreme drought.	Medium	High	Short	Temporary	Medium (beneficial)	Medium	None	Moderate beneficial
Archaeology and cultural heritage	7.1 To conserve and enhance the historic environment, heritage assets and their settings and protect archaeologically important sites.	There are no heritage assets in proximity to the reservoir or the hydrological zone of influence and therefore no impacts are expected. No water-dependent palaeo-environmental features have been identified that might be affected by operation of this drought plan measure.	N/a	N/a	N/a	N/a	N/a	N/a	None	None

Topic	SEA objective	Potential residual effect on sensitive receptors (assuming good practice construction methods)	Scale of effect: (Small/ Medium/ Large)	Certainty of effect (Low / Medium/ High)	Duration (short/ medium /long term)	Permanence of effect (permanent/ temporary)	Magnitude of effect (Low / Medium/ High)	Value/ sensitivity of receptor (Low / Medium/ High)	Residual Adverse Effect	Residual Beneficial Effect
Landscape and visual amenity	8.1 To protect, enhance the quality of and improve access to designated and undesignated landscapes, townscapes and the countryside.	The drought permit zone of hydrological influence lies within the Mendip Hills AONB with significant access (public footpaths) near to the Congresbury Yeo. The drought permit will temporarily result in lower river levels. However, the drought permit will lead to the reservoir levels being slightly higher for longer. The effects are short term and reversible after the drought permit implementation period has expired.	Medium	Low	Short	Temporary	Low (adverse)	High	Moderate adverse	None

Table F7: Chew Reservoir compensation flow reduction

Topic	SEA objective	Potential residual effect on sensitive receptors (assuming good practice construction methods)	Scale of effect: (Small/ Medium/ Large)	Certainty of effect (Low / Medium/ High)	Duration (short/ medium /long term)	Permanence of effect (permanent/ temporary)	Magnitude of effect (Low / Medium/ High)	Value/ sensitivity of receptor (Low / Medium/ High)	Residual Adverse Effect	Residual Beneficial Effect
Biodiversity, fauna and flora	1.1 To conserve and enhance biodiversity, including designated sites of nature conservation interest and protected habitats and species and to enhance natural capital.	The potential for effects on the North Somerset and Mendip Bats SAC and Chew Valley Lake SPA were considered in the HRA screening. The assessment identified no Likely Significant Effects in all cases. The drought permit will help to maintain (albeit already low) water levels in Chew Reservoir which is a SSSI and SPA due to its overwintering bird community. Therefore any effects on the designated interest features resulting from the drought permit would be of some minor benefit. The drought permit would result in a 50% reduction in the compensation flow release to the River Chew. This would lead to a reduction in the wetted width and depth of the River Chew, which would be most noticeable immediately downstream of the reservoir to the confluence with the Winford Brook (2.5km downstream. These flow impacts will reduce with increased distance downstream of the reservoir. At Compton Dando, ~12.5km downstream of the reservoir, under the early summer period, a 7.3Ml/d reduction in flow (due to the drought permit) would result in a 13% reduction in the mean flow and a 25% reduction in flow at low flows (Q95), with flows reduced to a value similar to the 99% exceedance flow (Q99). In the winter/spring period, a 3.4Ml/d reduction in the compensation flow would result in a 2% reduction at Compton Dando to the mean flow and an 8% reduction in flow at low flow conditions (Q95), with flows reduced to a value similar to the 97% exceedance flow (Q97). A reduction in river flow and water quality has the potential to affect the ecological status of the River Chew. The river is currently classed under the WFD as High status for fish and macroinvertebrates. The river is not assessed under WFD for the combined macrophyte and phytobenthos classification. The overall WFD macroinvertebrate classification is High status, but samples taken directly downstream of the compensation flow discharge point indicate a flow and sediment impact. These impacts are likely to increase during the implementation of the drought permit due to reduced flow velocities. A reduction in flow will lead to a reduction in wetted width and depth which will directly reduce the overall habitat availability within the reaches. However, as much of the River Chew is impounded, the reductions in wetted width are expected to be minor. Fish (currently classed as High status under WFD) may also be affected due to the reduced flow and consequent impact on river water quality. Hydrological impacts include low flows and reduced wetted width. This will reduce the amount of habitat available for fish which will be significant especially for spawning and nursery grounds. Fish surveys from 2011 indicate low densities of brown trout at the closest site to the reservoir (~2.5km). Upstream of this location, there is a lack of suitable habitat due to significant siltation and a number of weirs which are likely to prevent the movement of fish. Therefore the potential for further impact due to the drought permit is low. Atlantic salmon were recorded at Compton Dando (12.5km downstream) in low numbers. At this point, the flow impact is assessed as negligible and therefore no impact on fish communities are expected. Mitigation measures for fish are linked to proposed physical and visual record surveys which would be carried out prior to implementation and which would then be ongoing throughout the duration of the drought permit implementation and would encompass areas most at risk from environmental stress such as large shallow areas and immediately downstream of effluent discharges. Mitigation measures, that would be agreed with the Environment Agency prior to implementation, could include the deployment of aeration equipment;	Medium	Medium	Medium	Temporary	Medium (adverse)	Medium	Moderate adverse	None

Topic	SEA objective	Potential residual effect on sensitive receptors (assuming good practice construction methods)	Scale of effect: (Small/ Medium/ Large)	Certainty of effect (Low / Medium/ High)	Duration (short/ medium /long term)	Permanence of effect (permanent/ temporary)	Magnitude of effect (Low / Medium/ High)	Value/ sensitivity of receptor (Low / Medium/ High)	Residual Adverse Effect	Residual Beneficial Effect
		undertaking a fish rescue (if considered appropriate) or temporary restoration of normal compensation flow . The effects on macroinvertebrates and fish are considered to be moderate, temporary and reversible.								
	1.2 To avoid introducing or spreading INNS.	The drought permit does not entail the movement of w ater between sources therefore increasing the risk of spreading INNS is deemed very low . A reduction in w etted width and depth is likely to increase the grow th of any marginal INNS if present.	Medium	Low	Short	Temporary	Low (adverse)	Medium	Minor adverse	None
Population and human health	2.1 To protect and enhance health and w ell-being (including raising aw areness of the importance and value of the w ater environment for health and w ell-being).	Implementation of the drought permit w ill help conserve water resources within Chew Lake w hich is essential to help maintain public w ater supplies during a period of drought.	Medium	High	Short	Temporary	Medium (adverse)	Medium	None	Moderate beneficial
	2.2 To protect and enhance the w ater environment for other users including recreation, tourism and navigation, as w ell as terrestrial recreational resources (including National Trails and Public Rights of Way).	There are a number public footpaths w hich run adjacent to and/or intersect the River Chew . The reduced w etted width and depth w ill affect the recreational and amenity value of the river. How ever, during a period of drought the rivers w ould naturally be low and therefore the recreation impacts of the drought permit are expected to be minimal. The drought permit w ill help to maintain w ater levels within Chew Reservoir relative to the levels that w ould occur without the drought permit in place, thereby providing some minor benefit. How ever, this is not deemed significant as the w ater levels would already be very low due to the drought conditions.	Medium	High	Short	Temporary	Low (adverse)	Low	Negligible adverse	None
	2.3 To promote a sustainable economy w ith good access to essential services, including a resilient, high quality and affordable supply of water.	Implementation of the drought permit w ill contribute to the maintenance of supply reliability in drought conditions, ensuring a resilient supply for customers and economic activity w ith no permanent adverse effects on the environment.	Small	Medium	Short	Temporary	Low (adverse) Low (beneficial)	Medium	Minor adverse	Minor beneficial
Material assets and resource use	3.1 To reduce, and make more efficient, the domestic, industrial and commercial consumption of resources, minimise the generation of w aste, encourage its re-use and eliminate w aste sent to landfill.	There are no construction requirements and therefore no additional materials are required. The drought permit aims to conserve water levels in Chew Reservoir: it w ill not result in additional abstraction and therefore nor w ill it result in any additional energy consumption or w aste produced.	N/a	N/a	N/a	N/a	N/a	N/a	None	None
	3.2 To promote and secure the efficient and sustainable use of w ater to ensure resilient w ater supplies for people and businesses.	No opportunities to promote the sustainable management of natural resources w ere identified for this drought permit.	N/a	N/a	N/a	N/a	N/a	N/a	None	None
Water	4.1 To avoid adverse impact on surface and groundw ater levels and flows, including when this impacts on habitats.	The drought permit w ould result in a 50% reduction in the compensation flow release to the River Chew . This w ould lead to a reduction in the w etted width and depth of the River Chew , w hich would be most noticeable immediately dow nstream of the reservoir to the confluence with the Winford Brook (2.5km dow nstream. These flow impacts will reduce with increased distance dow nstream of the reservoir. At Compton Dando, ~12.5km dow nstream of the reservoir, under the early summer period, a 7.3Ml/d reduction in flow (due to the drought permit) w ould result in a 13% reduction in the mean flow and a 25% reduction in flow at low flow s (Q95), with flow s reduced to a value similar to the 99% exceedance flow (Q99). In the w inter/spring period, a 3.4Ml/d reduction in the compensation flow would result in a 2% reduction at Compton Dando to the mean flow and an 8% reduction in flow at low flow conditions (Q95), with flow s reduced to a value similar to the 97% exceedance flow (Q97).	Medium	High	Short	Temporary	Medium (adverse)	Medium	Moderate adverse	None

Topic	SEA objective	Potential residual effect on sensitive receptors (assuming good practice construction methods)	Scale of effect: (Small/ Medium/ Large)	Certainty of effect (Low / Medium/ High)	Duration (short/ medium /long term)	Permanence of effect (permanent/ temporary)	Magnitude of effect (Low / Medium/ High)	Value/ sensitivity of receptor (Low / Medium/ High)	Residual Adverse Effect	Residual Beneficial Effect
	4.2 To protect and enhance surface and groundwater quality and protect and enhance estuarine waterbodies.	The reduction in compensation flow will result in reduced dilution downstream of the reservoir, in particular the dilution of wastewater discharges from sewage treatment works at Chew Stoke, Stanton Drew, Pensford and Compton Dando. The effect of which will increase the concentration of parameters such as ammonia, BOD and phosphorus in the river. The impact will diminish with distance downstream from the reservoir as the flow impact of the drought permit decreases. All water quality parameters are currently classified under the WFD as High status apart from orthophosphate which is assessed as Moderate status. There may be a risk that orthophosphate may drop below Moderate status. The WFD waterbody (GB109053021852) has an objective of Good status by 2021. This temporary drought permit should not affect this long term objective. The significance of the impact is considered to be moderate adverse.	Medium	High	Short	Temporary	Medium (adverse)	Medium	Moderate adverse	None
	4.3 To ensure appropriate and sustainable management of abstractions to maintain water supplies whilst protecting ecosystem functions and services that rely on water resources	The drought permit will likely have some minor, but temporary adverse impact on water dependent ecosystems in the affected reach. A monitoring programme will be required to demonstrate 'no deterioration' under the WFD as a result of implementing the drought permit. There is a surface water abstraction near Stanton Drew for agricultural use/ irrigation. The flow impacts of the drought permit at this location are assessed as minor to negligible and therefore little impact is expected on this abstractor.	Small	High	Short	Temporary	Low (adverse)	Low	Minor adverse	None
Soil, geology and land use	5.1 To protect and enhance geology, geomorphology and the quality and quantity of soils.	The reduced compensation flow will temporarily enhance the sedimentation in the river downstream of the reservoir due to reduced velocities. At present, many sections of the River Chew suffer from sedimentation which is likely to be exacerbated to a minor degree by operation of the drought permit. No water-dependent palaeo-environmental features have been identified that might be affected by operation of this drought plan measure.	Medium	High	Short	Temporary	Low (adverse)	Medium	Minor adverse	None
Air and Climate	6.1 To reduce air pollutant emissions.	The drought permit option will not result in any additional emissions to the atmosphere.	N/a	N/a	N/a	N/a	N/a	N/a	None	None
	6.2 To reduce greenhouse gas emissions.	There is no construction or increased abstraction as a result of this drought permit, therefore no impact is expected on greenhouse gas emissions.	N/a	N/a	N/a	N/a	N/a	N/a	None	None
	6.3 To adapt and improve resilience to the threats of climate change.	The Drought Plan is a tactical response 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 permit will provide between 3.4 Ml/d and 7.0 Ml/d depending on the season) of additional water resource under a period of drought.	Medium	Medium	Short	Temporary	Medium (beneficial)	Medium	None	Moderate beneficial
Archaeology and cultural heritage	7.1 To conserve and enhance the historic environment, heritage assets and their settings and protect archaeologically important sites.	There are no heritage assets in proximity to the hydrological zone of influence and therefore no impacts are expected. No water-dependent palaeo-environmental features have been identified that might be affected by operation of this drought plan measure.	N/a	N/a	N/a	N/a	N/a	N/a	None	None
Landscape and visual amenity	8.1 To protect, enhance the quality of and improve access to designated and undesignated landscapes, townscapes and the countryside.	The drought permit hydrological zone of influence lies within an AONB with significant access (public footpaths) near to the River Chew. The drought permit will temporarily result in lower river levels. However, reservoir levels will be higher for longer due to the reduced flow releases. The effects are short term and reversible after the drought permit implementation period has expired.	Small	Medium	Short	Temporary	Low (adverse)	High	Moderate adverse	None

Table F8: Cheddar Ponds Reservoir compensation flow reduction

Topic	SEA objective	Potential residual effect on sensitive receptors (assuming good practice construction methods)	Scale of effect: (Small/ Medium/ Large)	Certainty of effect (Low / Medium/ High)	Duration (short/ medium /long term)	Permanence of effect (permanent/ temporary)	Magnitude of effect (Low / Medium/ High)	Value/ sensitivity of receptor (Low / Medium/ High)	Residual Adverse Effect	Residual Beneficial Effect
Biodiversity, fauna and flora	1.1 To conserve and enhance biodiversity, including designated sites of nature conservation interest and protected habitats and species and to enhance natural capital.	The potential for effects on the North Somerset and Mendip Bats SAC were considered in the HRA screening. The assessment identified no Likely Significant Effects in all cases. The drought permit will help to maintain water levels in Cheddar Reservoir which is a SSSI and designated for its overwintering bird community. Therefore any effects on the interest features resulting from the drought permit would have some minor benefit. The drought permit will result in a 50% reduction in the prescribed flow into the Cheddar Yeo. This will result in a reduction in the wetted width and depth in the river. Moderate hydrological impacts under low flow conditions are assessed for the reach between Cheddar Ponds to Hythe sewage treatment works (2.5km); minor impacts are identified from the sewage works to the confluence with the River Axe under low flow conditions. The flow reduction may result in impacts to the macroinvertebrate community via the reduction in wetted width and depth. The WFD Macroinvertebrate component is currently assessed as at High status. Macroinvertebrate LIFE scores (an indicator of flow preference) of samples collected in 2010 indicate species which prefer moderate to fast flows. Therefore the drought permit may result in some ecological impacts. No salmonid species were recorded during fishery surveys undertaken in 2011: all species were identified as coarse fish, considered to be of lower value/sensitivity. The WFD Fish component is currently assessed as High status. Downstream of Hythe sewage treatment works, the Cheddar Yeo is level controlled which will mitigate the effects of the flow reduction, with impacts only to flow velocity but not water levels/wetted width. The Somerset Levels and Moors Environmentally Sensitive Area (ESA) extends over 27,678 ha of the central Somerset lowlands, bounded by the Mendips to the north, low limestone escarpments to the east, the Blackdown Hills to the south and the Quantock Hills to the west. The moors are an extensive very low-lying basin peat, with a few remnants of raised bog, surrounded by alluvial silt and clay. The management objectives include of the ESA include water level maintenance for the enhancement of wet grasslands. The drought permit will reduce flows into the Somerset Levels and Moors ESA. However, water levels are controlled downstream of Hythe sewage treatment works and the hydrological impacts are not expected after the confluence with the River Axe; consequently, no significant effects are expected. Mitigation measures for fish are linked to proposed physical and visual record surveys, which would be carried out prior to implementation of the drought permit and then ongoing through the duration of the drought permit implementation and would encompass areas most at risk from environmental stress such as large shallow areas and immediately downstream of effluent discharges. Mitigation measures, that would be agreed with the Environment Agency prior to implementation, could include the deployment of aeration equipment; undertaking a fish rescue (if considered appropriate) or temporary restoration of normal compensation flow. The effects on macroinvertebrates and fish are considered to be moderate, temporary and reversible.	Medium	Medium	Medium	Temporary	Medium (adverse)	Medium	Moderate adverse	None
	1.2 To avoid introducing or spreading INNS.	The drought permit does not entail the movement of water between sources but a reduction in flow and therefore increasing the risk of spreading INNS is deemed very low. A reduction in wetted width and depth in the river reach	Small	High	Short	Temporary	Low (adverse)	Medium	Minor adverse	None

Topic	SEA objective	Potential residual effect on sensitive receptors (assuming good practice construction methods)	Scale of effect: (Small/ Medium/ Large)	Certainty of effect (Low / Medium/ High)	Duration (short/ medium /long term)	Permanence of effect (permanent/ temporary)	Magnitude of effect (Low / Medium/ High)	Value/ sensitivity of receptor (Low / Medium/ High)	Residual Adverse Effect	Residual Beneficial Effect
		downstream of the reservoir is likely to increase the growth of any marginal INNS if present.								
Population and human health	2.1 To protect and enhance health and well-being (including raising awareness of the importance and value of the water environment for health and well-being).	Implementation of the drought permit will help conserve water resources within Cheddar Reservoir which is essential to maintain public water supplies during a period of drought.	Medium	High	Short	Temporary	Low (beneficial)	High	None	Moderate beneficial
	2.2 To protect and enhance the water environment for other users including recreation, tourism and navigation, as well as terrestrial recreational resources (including National Trails and Public Rights of Way).	The Cheddar Yeo has a pubic footpath along the entire reach (Cheddar Village to River Axe). The reduced wetted width and depth will temporarily affect the recreational and amenity value of the river. During a period of drought, however, the river would naturally be low and therefore the recreation impacts of the drought permit are expected to be minimal. The drought permit will help maintain water levels within Cheddar Reservoir relative to those that would occur without the drought permit in place, therefore providing a minor benefit. However, this is not deemed significant as the water levels would already be very low under drought conditions.	Small	High	Short	Temporary	Low (adverse)	Low	Negligible adverse	None
	2.3 To promote a sustainable economy with good access to essential services, including a resilient, high quality and affordable supply of water.	Implementation of the drought permit will contribute to the maintenance of supply reliability in drought conditions, ensuring a resilient supply for customers and economic activity with no permanent adverse effects on the environment.	Small	Medium	Short	Temporary	Low (adverse) Low (beneficial)	Medium	Minor adverse	Minor beneficial
Material assets and resource use	3.1 To reduce, and make more efficient, the domestic, industrial and commercial consumption of resources, minimise the generation of waste, encourage its re-use and eliminate waste sent to landfill.	There are no construction requirements and therefore no additional materials are required. The drought permit will not result in additional abstraction and therefore there will be no additional energy consumption and waste produced.	N/a	N/a	N/a	N/a	N/a	N/a	None	None
	3.2 To promote and secure the efficient and sustainable use of water to ensure resilient water supplies for people and businesses.	No opportunities to promote the sustainable management of natural resources were identified for this drought permit.	N/a	N/a	N/a	N/a	N/a	N/a	None	None
Water	4.1 To avoid adverse impact on surface and groundwater levels and flows, including when this impacts on habitats.	The drought permit will result in a 50% reduction in the prescribed flow into the Cheddar Yeo. This will result in a reduction in the wetted width and depth in the river. Moderate hydrological impacts under low flow conditions are assessed for the reach between Cheddar Ponds to Hythe sewage treatment works (2.5km); minor impacts are identified from the sewage works to the confluence with the River Axe under low flow conditions. Downstream of Hythe sewage treatment works, the Cheddar Yeo is level controlled which will mitigate the effects of the flow reduction, with impacts only to flow velocity but not water levels/wetted width.	Medium	High	Short	Temporary	Medium (adverse)	Medium	Moderate adverse	None
	4.2 To protect and enhance surface and groundwater quality and protect and enhance estuarine waterbodies.	The river is currently classed under WFD as Poor for phosphate and the drought permit will reduce the level of dilution of discharges from Hythe sewage treatment work. The drought permit would reduce flow in the downstream Cheddar Yeo in the winter and spring period (1 December to 14 May) with no impacts on river flow outside this period. Therefore the potential for reductions in water quality combined with high temperatures in the summer months are not anticipated.	Medium	High	Short	Temporary	Low (adverse)	Medium	Minor adverse	None

Topic	SEA objective	Potential residual effect on sensitive receptors (assuming good practice construction methods)	Scale of effect: (Small/ Medium/ Large)	Certainty of effect (Low / Medium/ High)	Duration (short/ medium /long term)	Permanence of effect (permanent/ temporary)	Magnitude of effect (Low / Medium/ High)	Value/ sensitivity of receptor (Low / Medium/ High)	Residual Adverse Effect	Residual Beneficial Effect
	4.3 To ensure appropriate and sustainable management of abstractions to maintain water supplies whilst protecting ecosystem functions and services that rely on water resources	The drought permit will likely have some minor, but temporary adverse impact on water dependent ecosystems in the affected reach. A monitoring programme will be required to demonstrate 'no deterioration' under the WFD as a result of implementing the drought permit. There are no other abstractions from the impacted reaches.	Small	High	Short	Temporary	Low (adverse)	Low	Minor adverse	None
Soil, geology and land use	5.1 To protect and enhance geology, geomorphology and the quality and quantity of soils.	The reduced prescribed flow will temporarily increase sedimentation to a minor degree within the impacted river reaches due to reduced velocities. No water-dependent palaeo-environmental features have been identified that might be affected by operation of this drought plan measure.	Medium	High	Short	Temporary	Low (adverse)	Medium	Minor adverse	None
Air and Climate	6.1 To reduce air pollutant emissions.	The drought permit option will not result in any additional emissions to the atmosphere.	N/a	N/a	N/a	N/a	N/a	N/a	None	None
	6.2 To reduce greenhouse gas emissions.	There is no construction or increased abstraction as a result of this drought permit, therefore no impacts on greenhouse gas emissions are expected.	N/a	N/a	N/a	N/a	N/a	N/a	None	None
	6.3 To adapt and improve resilience to the threats of climate change.	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 permit will provide up to 3.4 Ml/d of additional water resource between under a period of extreme drought.	Medium	High	Short	Temporary	Medium (beneficial)	Medium	None	Moderate beneficial
Archaeology and cultural heritage	7.1 To conserve and enhance the historic environment, heritage assets and their settings and protect archaeologically important sites.	There are no heritage assets in proximity to hydrological zone of influence and therefore no impacts are expected. The Somerset Levels EPA archaeology and history is internationally famous, with many prehistoric wooden trackways that have been preserved for millennia in the waterlogged ground. However, the drought permit would not affect water levels in this area. Therefore, the potential for effects on known and unknown heritage assets and archaeology sites are considered unlikely.	Small	Medium	Short	Temporary	Low (adverse)	Medium	Minor adverse	None
Landscape and visual amenity	8.1 To protect, enhance the quality of and improve access to designated and undesignated landscapes, townscapes and the countryside.	The drought option permit hydrological zone of influence lies within the Mendip Hills AONB with significant access (public footpaths) near to the Cheddar Yeo. The drought permit will temporarily result in lower river levels. However, reservoir levels will be higher for longer due to the reduced flow releases. The effects are short term and reversible after the drought permit implementation period has expired.	Small	Medium	Short	Temporary	Low (adverse)	High	Moderate adverse	None

Appendix G: WFD Summary Tables

Appendix G details the WFD summary tables used in the assessment for the relevant waterbodies.

Table G1: Waterbodies relevant to the Blagdon Reservoir drought permit

Waterbody	**WFD waterbody name**	Yeo - source to conf Congresbury Yeo				
	WFD water body type	River				
	WFD management catchment	Avon Bristol and North Somerset Streams		**WFD waterbody ID**	GB109052021640	
	River Basin District	Severn				
	WFD Designations, Objectives and Mitigation					
	WFD Status and Objectives	**RBMP2 Overall Status**	**Objective (2021)**		**Objective (2027)**	
		Poor	-		Good	
	Hydromorphological designation		Heavily Modified			
	WFD Protected Areas					
	Bathing Water Directive	**Drinking Water Directive**	**Conservation of Wild Birds Directive**	**Habitats Directive**	**Nitrates Directive**	**Shellfish Directive**	**Urban Waste Water Treatment Directive**
	NO	NO	YES	YES	YES	NO	NO
WFD assessment (scoping)	**WFD element**	**Current status**	**Impact Assessment**				
	· Fish	Good	A low risk of temporary (but not permanent) deterioration in WFD water body status between status class for one or more WFD elements in the downstream watercourse: note this is a risk, not a certainty and mitigation measures will be deployed to minimise this temporary risk as far as practicable. These mitigation measures will be considered further as part of the development of the Environmental Assessment Report. No risk of permanent deterioration in WFD status class for any element is considered likely.				
	· Macro-invertebrates	High				
	· Macrophytes & Phytobentos	Poor				
	Does the component comply with WFD Objective					
	1. No deterioration between status classes	Low risk of a temporary deterioration in status but risk will be mitigated as far as practicable				
	2. No impediments to GES/GEP	No likely adverse effects				
	3. No compromises to water body objectives	No likely adverse effects				
	4. No effects on other water bodies	No likely adverse effects				
	5. Assists attainment of water body objectives	No likely adverse effects with appropriate mitigation				
	6. Assists attainment of protected area objectives	No likely adverse effects				

Table G2: Waterbody relevant to the Chew Reservoir drought permit

Waterbody	**WFD waterbody name**	Chew - Chew Valley Lake to conf Winford Brook				
	WFD water body type	River				
	WFD management catchment	Avon Bristol and North Somerset Streams		**WFD waterbody ID**	GB109053021852	
	River Basin District	Severn				
	WFD Designations, Objectives and Mitigation					
	WFD Status and Objectives	**RBMP2 Overall Status**	**Objective (2021)**		**Objective (2027)**	
		Moderate	Good		-	
	Hydromorphological designation		Heavily Modified			
	WFD Protected Areas					
	Bathing Water Directive	**Drinking Water Directive**	**Conservation of Wild Birds Directive**	**Habitats Directive**	**Nitrates Directive**	**Shellfish Directive**	**Urban Waste Water Treatment Directive**
	NO	NO	YES	NO	YES	NO	NO
WFD assessment (scoping)	**WFD element**	**Current status**	**Impact Assessment**				
	· Fish	High	A low risk of temporary (but not permanent) deterioration in WFD water body status between status class for one or more WFD elements in the downstream watercourse: note this is a risk, not a certainty and mitigation measures will be deployed to minimise this temporary risk as far as practicable. These mitigation measures will be considered further as part of the development of the Environmental Assessment Report. No risk of permanent deterioration in WFD status class for any element is considered likely.				
	· Macro-invertebrates	High					
	· Macrophytes & Phytobentos	-					
	Does the component comply with WFD Objective						
	1. No deterioration between status classes	Low risk of a temporary deterioration in status but risk will be mitigated as far as practicable					
	2. No impediments to GES/GEP	No likely adverse effects					
	3. No compromises to water body objectives	No likely adverse effects					
	4. No effects on other water bodies	No likely adverse effects					
	5. Assists attainment of water body objectives	No likely adverse effects with appropriate mitigation					
	6. Assists attainment of protected area objectives	No likely adverse effects					

Table G3: Waterbody relevant to the Chew Reservoir drought permit

Waterbody	**WFD waterbody name**	Chew - conf Winford Bk to conf R Avon (Brist)					
	WFD water body type	River					
	WFD management catchment	Avon Bristol and North Somerset Streams		**WFD waterbody ID**	GB109053021950		
	River Basin District	Severn					
	WFD Designations, Objectives and Mitigation						
	WFD Status and Objectives	**RBMP2 Overall Status**	**Objective (2021)**		**Objective (2027)**		
		Moderate	Good		-		
	Hydromorphological designation		Not designated Artificial or Heavily Modified				
	WFD Protected Areas						
	Bathing Water Directive	**Drinking Water Directive**	**Conservation of Wild Birds Directive**	**Habitats Directive**	**Nitrates Directive**	**Shellfish Directive**	**Urban Waste Water Treatment Directive**
	NO	NO	NO	NO	YES	NO	NO
WFD assessment (scoping)	**WFD element**	**Current status**	**Impact Assessment**				
	· Fish	-	A low risk of temporary (but not permanent) deterioration in WFD water body status between status class for one or more WFD elements in the downstream watercourse: note this is a risk, not a certainty and mitigation measures will be deployed to minimise this temporary risk as far as practicable. These mitigation measures will be considered further as part of the development of the Environmental Assessment Report. No risk of permanent deterioration in WFD status class for any element is considered likely.					
	· Macro-invertebrates	High					
	· Macrophytes & Phytobentos	Moderate					
	Does the component comply with WFD Objective						
	1. No deterioration between status classes	Low risk of a temporary deterioration in status but risk will be mitigated as far as practicable					
	2. No impediments to GES/GEP	No likely adverse effects					
	3. No compromises to water body objectives	No likely adverse effects					
	4. No effects on other water bodies	No likely adverse effects					
	5. Assists attainment of water body objectives	No likely adverse effects with appropriate mitigation					
	6. Assists attainment of protected area objectives	No likely adverse effects					

Table G4: Waterbody relevant to the Cheddar Yeo drought permit

Waterbody	**WFD waterbody name**	Cheddar Yeo - source to conf Stubbingham Rhyne					
	WFD water body type	River					
	WFD management catchment	South and West Somerset		**WFD waterbody ID**	GB109052021540		
	River Basin District	South West					
	WFD Designations, Objectives and Mitigation						
	WFD Status and Objectives	**RBMP2 Overall Status**	**Objective (2021)**		**Objective (2027)**		
		Moderate	-		Good		
	Hydromorphological designation		Not designated Artificial or Heavily Modified				
	WFD Protected Areas						
	Bathing Water Directive	**Drinking Water Directive**	**Conservation of Wild Birds Directive**	**Habitats Directive**	**Nitrates Directive**	**Shellfish Directive**	**Urban Waste Water Treatment Directive**
	NO	NO	NO	NO	YES	NO	YES
WFD assessment (scoping)	**WFD element**	**Current status**	**Impact Assessment**				
	· Fish	High	A low risk of temporary (but not permanent) deterioration in WFD water body status between status class for one or more WFD elements in the downstream watercourse: note this is a risk, not a certainty and mitigation measures will be deployed to minimise this temporary risk as far as practicable. These mitigation measures will be considered further as part of the development of the Environmental Assessment Report. No risk of permanent deterioration in WFD status class for any element is considered likely.					
	· Macro-invertebrates	High					
	· Macrophytes & Phytobentos	Good					

Does the component comply with WFD Objective	
1. No deterioration between status classes	Low risk of a temporary deterioration in status but risk will be mitigated as far as practicable
2. No impediments to GES/GEP	No likely adverse effects
3. No compromises to water body objectives	No likely adverse effects
4. No effects on other water bodies	No likely adverse effects
5. Assists attainment of water body objectives	No likely adverse effects with appropriate mitigation
6. Assists attainment of protected area objectives	No likely adverse effects

Table G5: Groundwater body relevant to the Honeyhurst and Rodney Stoke (Wellhead) supply augmentation measure

Waterbody								
	WFD waterbody name	Wells			**WFD waterbody ID**	GB40902G804700		
	WFD management catchment	South West GW			**River Basin District**	South West		
	WFD Designations, Objectives and Mitigation							
	WFD Status and Objectives	RBMP2 Overall Status	Objective (2021)	Objective (2027)				
		Good	-	-				
		WFD Protected Areas						
		Bathing Water Directive	**Drinking Water Directive**	**Conservation of Wild Birds Directive**	**Habitats Directive**	**Nitrates Directive**	**Shellfish Directive**	**Urban Waste Water Treatment Directive**
		NO	YES	NO	NO	NO	NO	NO

WFD assessment (scoping)			
	WFD Quantitative and Chemical Status (waterbody)		
	WFD Status Test	**Current Status**	**Impact Assessment**
	Quantitative	Good	Negligible risk of deterioration, but more a detailed assessment would be required to confirm this conclusion prior to implementation of this measure.
	Dependent Surface Water Body Status	Good	
	GWDTEs test	Good	
	Does the component comply with WFD Objective		
	1. No deterioration between status classes	Negligible risk of temporary deterioration in status	
	2. No impediments to GES/GEP	No likely adverse effects	
	3. No compromises to water body objectives	No likely adverse effects	
	4. No effects on other water bodies	No likely adverse effects	
	5. Assists attainment of water body objectives	No likely adverse effects with appropriate mitigation during construction activities	
	6. Assists attainment of protected area objectives	No likely adverse effects	

Appendix H: Quality Assurance

Table H1: Quality Assurance Checklist

Checklist item	Comments
Objectives and context	
The plan's or programme's purpose and objectives are made clear.	The purpose of the Drought Plan 2016 is set out in Section 1 of this Environmental Report.
Environmental issues and constraints, including international and EC environmental protection objectives, are considered in developing objectives and targets.	Objectives of other relevant plans and programmes are set out in Section 2.2 and Appendix D.
SEA objectives, where used, are clearly set out and linked to indicators and targets where appropriate.	Objectives are set out in Section 4.2 of this Environmental Report.
Links with other related plans, programmes and policies are identified and explained.	Links are identified in Section 2.2 and Appendix D of this Environmental Report.
Conflicts that exist between SEA objectives, between SEA and plan objectives and between SEA objectives and other plan objectives are identified and described	Cumulative effects such as those associated with the Drought Plan and other plans are addressed in section 6. Bristol Water has not identified any objectives for the Drought Plan, hence there are no conflicts with the SEA objectives.
Scoping	
Consultation Bodies are consulted in appropriate ways and at appropriate times on the content and scope of the Environmental Report. The consultation process is described in Section 1.7	A Scoping Report and Environmental Report have been issued for consultation in accordance with the requirements of the SEA Directive. The consultation process is described in Section 1.7
The assessment focuses on significant issues.	The scope of the assessment reflects the geographic extent of Bristol Water supply area and provides a comprehensive approach to assessment (reflecting the large number of interactions dependent on the continued supply of water) which has enabled the subsequent assessment to determine which impacts will be considered significant.
Technical, procedural and other difficulties encountered are discussed; assumptions and uncertainties are made explicit.	Difficulties and assumptions are set out in Section 3.1 of this Environmental Report.
Reasons are given for eliminating issues from further consideration.	The SEA objectives provide a comprehensive basis for assessment and no issues were eliminated at scoping stage.
Alternatives	
Realistic alternatives are considered for key issues, and the reasons for choosing them are documented.	The appraisal framework, was used to assess drought measures as set out in this Environmental Report.
Alternatives include 'do minimum' and/or 'business as usual' scenarios wherever relevant.	Assessment of alternatives will be considered in the Environmental Report.

Checklist item	Comments
The environmental effects (both adverse and beneficial) of each alternative are identified and compared.	Assessment of effects of each drought option/measure have been identified and compared considered in Section 5 and Appendix F of this Environmental Report.
Inconsistencies between the alternatives and other relevant plans, programmes or policies are identified and explained.	Assessment of alternatives (the drought options) have been considered in this Environmental Report.
Reasons are given for selection or elimination of alternatives.	Assessment of alternatives (the drought options) have been considered in this Environmental Report.
Baseline information	
Relevant aspects of the current state of the environment and their likely evolution without the plan or programme are described.	The current state of the environment and predicted future baseline is set out in Section 3.2 and Appendix E of this Environmental Report for each SEA topic.
Environmental characteristics of areas likely to be significantly affected are described, including areas wider than the physical boundary of the plan area where it is likely to be affected by the plan.	The environmental characteristics of the Bristol Water's water supply area, and bordering regions where appropriate, are described in Section 3.2 and Appendix E of this Environmental Report for each SEA topic.
Difficulties such as deficiencies in information or methods are explained.	Difficulties and limitations are set out in Section 3.1
Prediction and evaluation of likely significant environmental effects	
Effects identified include the types listed in the Directive (biodiversity, population, human health, fauna, flora, soil, water, air, climate factors, material assets, cultural heritage and landscape), as relevant; other likely environmental effects are also covered, as appropriate.	Potential effects have been set out in the Environmental Report in Section 5, Section 6 and Appendix F.
Both positive and negative effects are considered, and the duration of effects (short, medium or long-term) is addressed.	The nature and duration of potential effects have been set out in the Environmental Report, using an appraisal framework set out in Section 4 of this Environmental Report. Effects are assessed in Sections 5 and 6 and Appendix F of the Environmental Report.
Likely secondary, cumulative and synergistic effects are identified where practicable.	These effects have been identified in the Environmental Report and described in Section 6.
Inter-relationships between effects are considered where practicable.	These effects have been considered within the assessment in Section 5 and Appendix F and also in Section 6 of this Environmental Report where practicable.
The prediction and evaluation of effects makes use of relevant accepted standards, regulations, and thresholds.	Relevant standards have been used where appropriate in undertaking the assessment in the Environmental Report.
Methods used to evaluate the effects are described.	The Environmental Report includes information on the methods used for evaluation of potential effects in Section 4.
Mitigation measures	

Checklist item	Comments
Measures envisaged to prevent, reduce and offset any significant adverse effects of implementing the plan or programme are indicated.	Mitigation measures for potential negative effects have been incorporated into the assessment undertaken in preparing the Environmental Report and are described in Section 7.2.
Issues to be taken into account in project consents are identified.	Such mitigating measures, if required, are highlighted in the Environmental Report.
The Environmental Report	
Is clear and concise in its layout and presentation.	The Environmental Report is clear and concise.
Uses simple, clear language and avoids or explains technical terms.	The Environmental Report uses simple, clear language, and explain technical terms, as appropriate.
Uses maps and other illustrations where appropriate.	The Environmental Report has used maps and illustrations where appropriate.
Explains the methodology used.	The SEA methodology has been described in Section 1 and Section 4 of the Environmental Report.
Explains who was consulted and what methods of consultation were used.	The consultation strategy, including organisations and dates of consultation has been included in Section 1.7 of the Environmental Report.
Identifies sources of information, including expert judgement and matters of opinion.	Sources of information have been detailed in the Environmental Report.
Contains a non-technical summary covering the overall approach to the SEA, the objectives of the plan, the main options considered, and any changes to the plan resulting from the SEA.	The Environmental Report includes a Non-Technical Summary.
Consultation	
The SEA is consulted on as an integral part of the plan-making process. The consultation process is described in Section 1.7	The Scoping Report is a part of the consultation process required to meet the requirements of the SEA Directive. Both have been/will be circulated to consultees. The consultation process is described in Section 1.7.
Consultation Bodies and the public likely to be affected by, or having an interest in, the plan or programme are consulted in ways and at times which give them an early and effective opportunity within appropriate time frames to express their opinions on the draft plan and Environmental Report. The consultation process is described in Section 1.7.	The Scoping Report is a part of the consultation process required to meet the requirements of the SEA Directive. Both have been/will be circulated to consultees. The consultation process is described in Section 1.7.
Decision-making and information on the decision	
The environmental report and the opinions of those consulted are taken into account in finalising and adopting the plan or programme.	Responses from consultation on the draft Environmental Report have been incorporated in the development of the final Environmental Report. After finalisation of the Drought Plan, a statement will be published describing how the SEA and the

Checklist item	Comments
	responses to consultation have been taken into account during the preparation of the Drought Plan.
An explanation is given of how they have been taken into account.	Consultation responses, and how they have been incorporated in the final Environmental Report will be incorporated in the report (see **Appendix C** for how consultation comments to date have been addressed in the Environmental Report). After finalisation of the Drought Plan, a statement will be published describing how the SEA and the responses to consultation have been taken into account during the preparation of the Drought Plan.
Reasons are given for choosing the plan or programme as adopted, in the light of other reasonable alternatives considered.	This is set out in the Statutory Drought Plan and Environmental Report.
Consultation	
Measures proposed for monitoring are clear, practicable and linked to the indicators and objectives used in the SEA.	See Section 7.3 of this Environmental Report which provides an overview of proposals for monitoring.
Monitoring is used, where appropriate, during implementation of the plan or programme to make good deficiencies in baseline information in the SEA.	Suggestions for monitoring have been made in the Environmental Report (see Section 7.3), with monitoring taking place following implementation of the Drought Plan, further to consultation with regulatory authorities including the Environment Agency, Natural England and Historic England.
Monitoring enables unforeseen adverse effects to be identified at an early stage. (These effects may include predictions which prove to be incorrect.)	Suggestions for monitoring have been made in the Environmental Report (see Section 7.3), with monitoring taking place following implementation of the Drought Plan, further to consultation with regulatory authorities including the Environment Agency, Natural England and Historic England.
Proposals are made for action in response to significant adverse effects.	Mitigation measures for adverse effects are suggested in the Environmental Report (see Section 7.2).

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