



Habitats Regulations Assessment Screening Report

SSW's Draft Drought Plan 2022

APEM Ref: P00007525

November 2021

Client: South Staffs Water

Address: Green Lane,
Walsall
West Midlands
WS2 7PD

Project reference: P00007525

Date of issue: 11/11/2021

Project Director: Dr David Bradley

Project Manager: Hannah Austin

Report author: Harvey Walsh

APEM Ltd
Riverview
A17 Embankment Business Park
Heaton Mersey
Stockport
SK4 3GN

Tel: 0161 442 8938
Fax: 0161 432 6083

Registered in England No. 02530851

This is a draft report and should not be cited.

Revision and Amendment Register

Version Number	Date	Section(s)	Page(s)	Summary of Changes	Approved by
1	30/09/2021	All	31	First draft for SSW review	DB
2	11/11/2021	All	31	Second draft, including screening assessment matrices	DB

Contents

Executive Summary	1
1. Introduction	2
2. Habitats Regulations Assessment Process	5
3. Identification of Relevant European Sites.....	15
4. HRA Screening Process	17
5. Strategic level supporting studies.....	20
6. HRA Screening Results	23
7. Conclusions	31

List of Tables

Table 2-1 Stages in the Habitats Regulations Assessment process	6
Table 2-2 Demand-side Drought Management Options	8
Table 2-3 Supply-side Drought Management Options	9
Table 2-4 Potential Impacts of Drought Options	11
Table 6-1 Screening of Demand Side Drought Options for Impacts on European Sites	24
Table 6-2 Screening of Company-wide Supply Side Drought Options for Impacts on European Sites.....	26
Table 6-3 Screening of Site Specific Supply Side Drought Options for Impacts on European Sites.....	27

Executive Summary

Water companies are required to prepare and maintain Statutory Drought Plans every five years, and as part of this process, must ensure the Drought Plan (DP) meets the requirements of the Habitats Regulations. South Staffs Water is updating its DP 2019 (DP19), which included an assessment under the Habitats Regulations and other associated Environmental Assessments. The updated Drought Plan (DP22) will be published as draft in 2021 and final in 2022.

Under Regulations 63 and 105, any plan or project which is likely to have a significant effect on a European site (either alone or in-combination with other plans or projects) and is not directly connected with, or necessary for the management of the site, must be subject to a Habitats Regulations Assessment (HRA) to determine the implications for the site in view of its Conservation Objectives. For the purposes of the HRA, a European site includes Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites.

South Staffs Water has 24 drought options which may result in environmental impact including supply side, demand side, and site-specific supply-side drought actions. An updated HRA Stage 1 Screening Assessment has been completed to identify if any of the supply side and demand side drought options could lead to Likely Significant Effects (LSEs) on European designated sites. The 'standard' supply and demand side actions remain substantially the same as for the DP19.

The HRA Stage 1 Screening process for the South Staffs Water Draft Drought Plan 2022 has concluded that the Draft Drought Plan will not result in a Likely Significant Effect (LSE) on the interest features on European sites, either alone or in combination with other Plans or Projects.

1. Introduction

1.1 Background

Water companies in England and Wales are required to prepare and maintain statutory Drought Plans under Sections 39B and 39C of the Water Industry Act 1991, as amended by the Water Act 2014, which set out the operational steps a company will take before, during and after a drought. The Water Industry Act 1991 (as amended) defines a Drought Plan as ‘*a plan for how the water undertaker will continue, during a period of drought, to discharge its duties to supply adequate quantities of wholesome water, with as little recourse as reasonably possible to Drought Orders or Drought Permits*’.

A water company must ensure its Drought Plan meets the requirements of the Habitats Regulations before implementation. The requirement for a Habitats Regulations Assessment (HRA) is established through the Conservation of Habitats and Species Regulations 2017 as amended. Under Regulations 63 and 105, any plan or project which is likely to have a significant effect on a European site (either alone or in-combination with other plans or projects) and is not directly connected with, or necessary for the management of the site, must be subject to a HRA to determine the implications for the site in view of its conservation objectives.

Water companies in England are required to produce a Drought Plan every five years and submit a draft plan to the Secretary State in line with the timescales set out in the Drought Plan (England) Direction 2020. The Environment Agency’s Drought Plan Guidance¹ also specifies that a water company must ensure that its drought plan meets the requirements of the Habitats Regulations. The Environment Agency’s 2020 Drought Plan Guidance advises companies to consult the UK Water Industry Research (UKWIR) report ‘*Strategic Environmental Assessment and Habitat Regulations Assessment - Guidance for Water Resources Management Plans and Drought Plans*’² in preparing its HRA. The UKWIR report recommends that all Drought Plans should be subject to the first stage of HRA, i.e. screening for Likely Significant Effects (LSE).

1.2 Requirement

The responsibility for undertaking the Habitats Regulations Assessment lies with SSW (SSW) as the Plan making authority.

¹ Environment Agency (2020) Water Company Drought Plan Guideline, December 2020 (Version 1.2)

² UKWIR (2021) Environmental Assessment Guidance for Water Resources Management Plans and Drought Plans (WR/02/S)

HRA Guidance for the appraisal of Plans³, summarises the Habitats Regulations. Regulation 63 states that the Plan making authority (in this case SSW) shall adopt, or otherwise give effect to, the Plan only after having ascertained that it will not adversely affect the integrity of a European site, subject to Regulation 64 or 105 of the Habitats Regulations.

Regulation 64 of the Habitats Regulations states:

1. If the competent authority is satisfied that, there being no alternative solutions, the plan or project must be carried out for Imperative Reasons of Overriding Public Interest (IROPI) (which, subject to paragraph (2), may be of a social or economic nature), it may agree to the plan or project notwithstanding a negative assessment of the implications for the European site or the European offshore marine site (as the case may be);
2. Where the site concerned hosts a priority natural habitat type or a priority species, the reasons referred to in paragraph (1) must be either:
 - a) reasons relating to human health, public safety or beneficial consequences of primary importance to the environment; or
 - b) any other reasons which the competent authority, having due regard to the opinion of the European Commission, considers to be IROPI.

Regulation 105 of the Habitats Regulations states:

1. Where a land use plan:
 - a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and
 - b) is not directly connected with or necessary to the management of the site, the plan-making authority for that plan must, before the plan is given effect, make an appropriate assessment of the implications for the site in view of that site's conservation objectives.
2. The plan-making authority must for the purposes of the assessment consult the appropriate nature conservation body and have regard to any representations made by that body within such reasonable time as the authority specifies;
3. The plan-making authority must also, if it considers it appropriate, take the opinion of the general public, and if it does so, it must take such steps for that purpose as it considers appropriate;
4. In the light of the conclusions of the assessment, and subject to regulation 107, the plan-making authority must give effect to the land use plan only after having ascertained that it will not adversely affect the integrity of the European site or the European offshore marine site (as the case may be);

³ Tyldesley, D. & Chapman, C. (2013) The Habitats Regulations Assessment Handbook, September 2021 edition UK: DTA Publications Limited

5. A plan-making authority must provide such information as the appropriate authority may reasonably require for the purposes of the discharge by the appropriate authority of its obligations under this Chapter.
6. This regulation does not apply in relation to a site which is:
 - a) a European site by reason of regulation 8(1)(c); or
 - b) a European offshore marine site by reason of regulation 18(c) of the Offshore Marine Conservation Regulations (site protected in accordance with Article 5(4) of the Habitats Directive).

The best practice guidance³ recommends that if there are no alternative solutions and if, in exceptional circumstances, it is proposed that a Plan be adopted despite the fact that it may adversely affect the integrity of a European site, the HRA will need to address and explain the IROPI which the Plan making authority considers to be sufficient to outweigh the potentially adverse effects on the European site(s). It must also agree and secure a package of compensation measures for the features of the site that may be adversely affected by implementation of the Plan.

1.3 Scope of the report

The purpose of this HRA Screening report is to:

- Describe the Project (the SSW Draft Drought Plan 2022);
- Provide information on the ecological interests and features of the potentially affected European Sites;
- Describe the likely nature and scale of the impacts on the European Sites from the Project or any likely 'in combination' and cumulative effects with other Plans and/ or Projects; and
- Consider the results to allow a decision on the information in this statement to be made by Natural England as the Competent Authority under The Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations), whether the Project proposals have the potential to significantly affect any European or Ramsar sites.

2. Habitats Regulations Assessment Process

2.1 Legislation

The Conservation of Habitats and Species Regulations 2017, referred to as the 'Habitats Regulations', transpose the requirements of the European Birds and Habitats Directive⁴ into UK legislation. The Birds Directive aims to protect rare and vulnerable birds and the habitats that they depend upon and this is achieved in part through the classification of Special Protection Areas (SPAs).

The Habitats Directive aims to protect plants, habitats and animals other than birds, and this is achieved in part through the creation of Special Areas of Conservation (SACs). Article 6(1) and (2) of the Habitats Directive require that Member States establish management measures for these areas, to avoid deterioration of their ecological interest. SPAs and SACs include European Marine Sites, which are designated sites below Mean High Water (out to 12 nautical miles). As per Natural England guidance⁵, any HRA should also consider any European Marine Protected Areas (MPAs) within England's inshore waters to support sites in achieving conservation objectives and to guide effective management. No MPAs of European importance or Marine Conservation Zones (MCZs) are associated with the study area.

The UK is also a contracting party to the Ramsar Convention⁶, which seeks to protect wetlands of international importance, especially those wetlands utilised as waterfowl habitat. It is UK Government policy that all competent authorities should treat Ramsar sites similarly as if they are fully designated European sites.

Collectively, all formally proposed and fully classified or designated SPAs and SACs, and all formally proposed or listed Ramsar sites form a pan-European Union network of protected areas known as Natura 2000. These are also referred to as European sites³, and this term has been adopted throughout this report.

⁴ Council Directive on the conservation of natural habitats and of wild fauna and flora of 21st May 1992 (92/43/EEC) and Council Directive on the conservation of wild birds of 2nd April 1979 (70/409/EEC) consolidated by the Birds Directive 2009 (2009/147/EC).

⁵ Tips and advice on how to assess potential impacts of water company statutory plans on the marine environment – Focussing on Marine Conservation Zones (MCZ) (June 2011)

⁶ Convention on wetlands of international importance especially as waterfowl habitat, Ramsar, Iran, 2/2/71 as amended by the Paris protocol of 3/12/92 and the Regina amendments adopted at the extraordinary conference of contracting parties at Regina, Saskatchewan, Canada 28/5 – 3/6/87, most commonly referred to as the 'Ramsar Convention'.

2.2 Habitats Regulations Assessment Process

Regulation 63 of the Habitats Regulations requires a competent authority to undertake an ‘appropriate assessment’ of any plan or project (alone or in-combination with other plans and projects) which is likely to have a significant effect on the features or a European Site, unless the project is directly connected with the management of the site.

It is incumbent on any public body (referred to as a competent authority within the Habitats Regulations) to carry out a HRA where they are proposing to carry out a project, implement a plan or authorise another party to carry out a plan or project. Competent authorities are required to record the process undertaken, ensuring that there will be no adverse effects on the integrity of a European site as a result of a plan or project.

2.3 Assessment Stages

The European Commission has developed guidance in relation to Articles 6(3) and 6(4) of the Habitats Directive⁷, and this recommends a four-stage approach to addressing the requirements of these Articles. Table 2-1 summarises the four HRA stages.

Table 2-1 Stages in the Habitats Regulations Assessment process

Stage	Description
Stage 1: Screening	Assessment of whether a plan or project, either alone or in combination with other plans or projects, is likely to have a significant effect on a Natura 2000 site.
Stage 2: Appropriate Assessment	Consider the impacts of the plan on the integrity of a European site, alone or in combination with other plans or projects and with reference to the site's conservation objectives. Consider measures to mitigate the identified impacts. Prepare an Appropriate Assessment Report for consultation with key stakeholders including Natural England.
Stage 3: Assessment of alternative solutions	Re-assessing alternatives if effective mitigation proves impossible and develop/ select a different alternative that does not harm site integrity. If no such alternatives exist the process continues to Stage 4.
Stage 4: Assessment where no alternative solutions exist and where adverse impacts remain	At this stage, plans which, after mitigation still have an adverse effect on the site(s) integrity should be dropped. Assessing whether a plan can be passed justified by ‘imperative reasons of overriding public interest’ (IROPI) or permitted on the grounds of human health, public safety or primary beneficial consequences for the environment.

⁷ European Commission (2001). Assessment of plans and projects significantly affecting Natura 2000 site. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. Published November 2001.

2.3.1 Stage 1 Screening

This stage identifies the likely effects of the Project on any European site, either alone or in combination with other plans or projects. Specifically, this stage considers whether these effects are likely to be significant with regard to the integrity of the European site. The Project will require 'appropriate assessment' if it is considered that any aspect of it will have a significant effect on any European site.

2.3.2 Stage 2 Appropriate Assessment

If it is considered that a plan or project is likely to have a significant effect on the integrity of a European site, the requirements of Stage 2 are triggered. This stage considers the impacts of the Project on the integrity of a European site, alone or in combination with other plans or projects. The assessment should consider the implications for the European site in view of the site's conservation objectives. If adverse impacts are identified, this assessment should also consider measures to mitigate the identified impacts.

If necessary, modifications to those proposals or policies are identified to avoid any adverse effects on site integrity. If mitigation is not possible and adverse effects on a European site's integrity remain, the process must proceed to Stage 3.

2.3.3 Guidance on procedure and method

This information has additionally been informed by the following guidance and policy documents:

- National Planning Policy Framework (2019); and
- Tyldesley, D. and Chapman, C. (2021) The Habitats Regulations Assessment Handbook. DTA Publications Limited.

The guidance does not define the method for undertaking or recording Habitats Regulations Assessment but notes that the adopted method must be appropriate to its purpose under the Habitats Directive and Habitats Regulations i.e. an 'appropriate assessment'.

2.4 EU Exit

The legislative transposing the EU Habitats Directive and the Wild Birds Directive has been changed so that they continue to operate effectively from 1st January 2021. This includes the Conservation of Habitats and Species Regulations 2017 (as amended) in England and Wales, and the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended).

The changes have been made by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. The changes ensure the strict protections afforded to sites, habitats and species, including wild birds, continue. Most of these changes involved transferring functions from the European Commission to the appropriate authorities in England and Wales. All other processes or terms in the 2017 Regulations remain unchanged and existing guidance is still relevant.

2.5 Potential Impacts

To provide an indication of those measures more likely to have a significant effect on a European site(s), those drought management measures that are within 10 km of a European site were identified initially. Consideration has also been given to the relative spatial locations of the drought management measures and designated sites within the same surface water and groundwater catchments and/ or estuarine system to ensure that any hydrological connectivity over a longer distance that might affect water-dependent sites, qualifying features and designated mobile species has been taken into account. GIS data were used to map the locations and boundaries of European sites within or adjacent to the SSW supply area, a single water resource zone (WRZ), using publicly available data from Natural England.

The attributes of the European sites, which contribute to and define their integrity, have been considered with reference to Standard Data forms for SACs and SPAs and Information Sheets for Ramsar sites. An analysis of these information sources has enabled the identification of the site's qualifying features. This information, as well as Article 12 and 17 reporting, site conservation objectives, supplementary guidance, Site Improvement Plans and the supporting Site of Special Scientific Interest's favourable condition tables, has been used to identify those features of each site which determine current conservation status, site integrity and the specific sensitivities of the site. Analysis of how potential impacts of the drought management measures may affect a European site has been undertaken using this information. The locations of the supply side drought options were also mapped to establish their geographic proximity to the European sites.

The Draft Drought Plan 2022 proposes a number of options which would make more water available for supply than is available under normal operating conditions. Drought options include demand side options (e.g. water use restrictions) and supply side options such as the continued utilisation of existing licensed water sources and drought permits and orders, which are drought management actions which provide greater flexibility to manage water resources, for example, by changing abstraction licence conditions.

Demand side options are designed to reduce the demand for water and the options available to SSW are consistent across the supply area (Table 2-2).

Supply side measures are measures available to SSW to introduce during a drought to increase the amount of water available for supply (Table 2-3).

Table 2-2 Demand-side Drought Management Options

Demand-side options	Comments
Enhanced communications	Increased water efficiency messages via increased customer communications.
Additional promotion of water efficiency	As above, including encouraging customers, for example, to switch to measured (metered) bills, including incentives for customers to change their water use behaviours
Enhanced leakage reductions	Ensure that all maintenance programmes are up-to-date and undertake additional leakage control, leading to demonstrable water savings
Appeals for restraint	Appeals for restraint is a significant uplift to the

Demand-side options	Comments
	drought communications activity. It aims to express the seriousness of an emerging drought before SSW implement temporary use restrictions. More use would be made of additional communication channels and the tone of messages would be modified.
Implementation of temporary use bans (TUBs)	Restrictions on the use of hosepipes for a range of uses, including the washing of vehicles and boats, watering gardens and sports grounds and filling of paddling pools. SSW could apply restrictions to part of their operating area, although normally they would be applied to the entire supply area and in alignment with neighbouring water companies, where possible.
Ordinary Drought Order – non-essential use bans (NEUBs)	Drought order to restrict non-essential water uses to be applied for when reservoir stocks fall below Drought Level 3 ⁸ . Ordinary drought orders allow SSW to further restrict non-essential water use at commercial and institutional premises. They are more wide-ranging than those included in a TUB.
Removal of Exemptions	Removing exemptions from TUBs/ NEUBs
Tariff changes	Higher tariffs for use over an allowed threshold. Reward or incentive schemes for reducing PCC
Media and communications	Hard hitting messages. Social unacceptability of excessive water use, prosecutions for breach of TuB or NEUB restrictions. Day Zero language
Relocation of water users	Relocate certain commercial large users such as farm stock or other businesses to area without drought impact
Shut down of manufacturing/ large users	Appeals for commercial large users to cease water using activities
Non potable use	Capture of water for re-use at scale or in domestic setting. Rainwater capture systems to prevent losses.

Table 2-3 Supply-side Drought Management Options

Supply-side options	Comments
Outage reduction	Proactive asset management maintenance programme to keep outage to a minimum and raise operational response priorities. Actions do not deliver additional savings; the objective is to ensure the full deployable output under dry year conditions is available
Conserving Blithfield Reservoir	Reduce abstraction to our Central Works to conserve

⁸ South Staffs Draft Drought Plan 2022

Supply-side options	Comments
	<p>storage at Blithfield Reservoir. The reduction in abstraction to the Central Works will increase in stages as the severity of the drought increases, and storage continues to fall at Blithfield Reservoir. The reductions in abstraction will be offset by an increase in abstraction from the River Severn Works, and by the other resource options.</p>
<p>Reviewing the potential for bulk supplies and transfers with Severn Trent Water Ltd (STWL)</p>	<p>SSW currently supply and receive small volumes of water to and from STWL at the edges of their distribution system. There is little scope for optimising these small volumes in drought conditions. The largest transfer between SSW and Severn Trent is as part of a joint abstraction licence and supplies water from the River Severn Works to Wolverhampton in Severn Trent's supply area. In the event of a drought, we will liaise with Severn Trent to ensure licence compliance and to optimise available resources.</p>
<p>Operating River Blithe pump back and using Brindley Bank – drought permit</p>	<p>The abstraction licence at River Blithe pump back allows water to be pumped from the River Blithe downstream of Blithfield Reservoir back to refill the reservoir. A second abstraction licence on the River Trent, just upstream of the confluence with the Blithe, enables water to be pumped back to the intake to maintain flows for the passage of migratory fish.</p>
<p>River Severn at the River Severn works – drought permit #1</p>	<p>The abstraction licence at the River Severn Works is restricted when the River Severn is under River Regulation and when the EA has implemented its own drought order on the River Severn (this requires a 5% reduction in abstraction licences on the river). Option we would consider applying for a drought order, which would enable a 5% increase in abstraction licence (that is, to restore the level of abstraction permitted before the EA drought order). This would restore the output of the River Severn Works to 192 Ml/d.</p>
<p>River Severn at the River Severn works – drought permit #2</p>	<p>Consider applying for a drought order to increase the level of abstraction of raw river water up to 216 Ml/d. This would enable SSW to conserve bankside storage reservoir levels and allow full use of maximum treatment capacity at the River Severn Works during the critical drought period. It is also possible that the second option may be required during implementation of an EA drought order and this has been used to define the maximum environmental impact case.</p>
<p>Groundwater drought permits</p>	<p>Increasing groundwater output over the full drought period (peak season) cannot be achieved within existing abstraction licences as these are largely fully utilised. Options for operating some existing sites under groundwater drought permits would allow a temporary increase of annual groundwater abstraction licence volumes for the duration of the permit. Where ten year rolling groundwater licences</p>

Supply-side options	Comments
	are also in place these conditions would still be adhered to. This would mean the groundwater abstraction would reduce in subsequent years to 'claw back' the temporary over-use of the licence.
Mothballed sites (Sandhills, Shenstone, Hulme Springs)	Explore bringing back sources, covered by current abstraction licences, which we have not used for several years.
Operating Blithfield Reservoir at low levels	Utilise water within Blithfield Reservoir within the Dead Storage zone (<25% top water level).
Tankering	Moving water from areas with surplus and injecting into networks or storage.
Effluent re-use	Redirecting discharges to supply for potable or nonpotable use
Network changes	Overland or temporary pipelines for new supplies

In determining the likelihood of significant effects on European sites from any drought management option, particular consideration has been given to the possible source receptor pathways through which effects may be transmitted from activities associated with the options to features contributing to the integrity of the European sites (e.g. groundwater or surface water catchments). Table 2-4 provides examples of the types of impacts the options may have on European site qualifying features. Screening for LSEs has been determined on a proximity basis for many of the types of impacts, based on the proximity of the potential location of each measure to each European site. However, there are many uncertainties associated with using set distances as there are very few standards available as a guide to how far impacts will extend. Different types of impacts can occur over different distances, and the assumptions and distances used in the HRA and justification for them are shown in Table 2-4.

SSW's Draft Drought Plan 2022 includes alternative long-term options available to the company in the event of a third consecutive dry year winter which may, if deployed, involve some construction activity (e.g. temporary overland pipelines). For all of the remaining options, there is no construction phase associated with the options and it is only operational impacts that will need to be considered.

Table 2-4 Potential Impacts of Drought Options

Broad categories of potential impacts on European sites, with examples	Examples of operations responsible for impacts (distance assumptions in italics)
Non-physical disturbance: <ul style="list-style-type: none"> • Noise (incl. underwater) • Visual presence • Human presence • Light pollution • Vibration (incl. underwater) 	Noise from temporary construction or temporary pumping activities - taking into consideration the noise level generated from general building activity (c. 122dB(A)) and considering the lowest noise level identified in appropriate guidance as likely to cause disturbance to bird species, it is concluded that noise impacts could be significant up to 1 km from the boundary of a European site. Noise from vehicular traffic during operation of a scheme - noise from construction traffic is only likely to be significant where the transport route to and from the scheme is within 3 – 5 km of the boundary of the European site.

Broad categories of potential impacts on European sites, with examples	Examples of operations responsible for impacts (distance assumptions in italics)
	<p>Plant and personnel involved in in operation of the scheme - These effects (noise, visual/ human presence) are only likely to be significant where the boundary of the scheme extends within or is directly adjacent to the boundary of the European site, or within/ adjacent to an offsite area of known foraging, roosting, breeding habitat (that supports species for which a European site is designated).</p> <p>Schemes which might include artificial lighting, e.g. for security around a temporary pumping station - effects from light pollution are only likely to be significant where the boundary of the scheme is within 500 m of the boundary of the European site.</p> <p>Vibration from temporary construction - from a review of EA internal guidance on HRA and various websites/ sources it is considered that effects of vibration are more likely to be significant if development is within 500 m of a European site.</p>
<p>Water table/ availability:</p> <ul style="list-style-type: none"> • Drying • Flooding/ stormwater • Changes to surface water levels and flows including both increases and reductions • Changes in groundwater levels and flows 	<p>Changes to water levels and flows due to increased water abstraction or reduced storage. These effects are only likely to be significant where the boundary of the scheme extends within the same ground or surface water catchment as the European site. However, these effects are dependent on hydrological continuity between the scheme and the European site, and sometimes, whether the scheme is up or down stream from the European site.</p>
<p>Toxic contamination:</p> <ul style="list-style-type: none"> • Water pollution • Soil contamination • Air Pollution 	<p>Reduced dilution in downstream or receiving waterbodies due to changes in abstraction or reduced compensation flow releases to river systems.</p> <p>These effects are only likely to be significant where the boundary of the scheme extends within the same ground or surface water catchment as the European site. However, these effects are dependent on hydrological continuity between the scheme and the European site, and sometimes, whether the scheme is up or down stream from the European site.</p> <p>Air emissions associated with plant and vehicular traffic during construction and operation of schemes.</p> <p>The effect of dust is only likely to be significant where site is within or in proximity to the boundary of the European site. Without mitigation, dust and dirt from the construction site may be transported onto the public road network and then deposited/ spread by vehicles on roads up to 500 m from large sites, 200 m from medium sites, and 50 m from small sites as measured from the site exit.</p>

Broad categories of potential impacts on European sites, with examples	Examples of operations responsible for impacts (distance assumptions in italics)
	Effects of road traffic emissions from the transport route to be taken by the project traffic are only likely to be significant where the protected site falls within 200 m of the edge of a road affected.
<p>Non-toxic contamination:</p> <ul style="list-style-type: none"> • Nutrient enrichment (e.g. of soils and water) • Algal blooms • Changes in water chemistry (e.g. pH, calcium balance etc) • Changes in thermal regime • Changes in turbidity • Changes in sedimentation/ silting 	Changes to nutrient levels, turbidity, thermal regime due to increased water abstraction or reduced compensation flow releases to river systems. These effects are only likely to be significant where the boundary of the scheme extends within the same ground or surface water catchment as the European Site. However, these effects are dependent on hydrological continuity between the scheme and the European site, and sometimes, whether the scheme is up or down stream from the European site.
<p>Biological disturbance:</p> <ul style="list-style-type: none"> • Changes to habitat availability • Out-competition by non-native species • Selective extraction of species • Rapid population fluctuations • Natural succession 	<p>Potential for changes to habitat availability, for example reductions in wetted width of rivers leading to desiccation of macrophyte beds due to changes in abstraction or reduced compensation flow releases to river systems.</p> <p>Creation of new pathway of non-native invasive species.</p> <p>This effect is only likely to be significant where the scheme is situated within the European site or an upstream tributary of the European site (or affects groundwater levels supporting these sites or tributaries).</p> <p>Entrapment during in-river or terrestrial construction works causing injury and/ or mortality of mobile species.</p> <p>Likely to be a risk of entrapment, injury and/or mortality where the boundary of the option extends within or is directly adjacent to the boundary of a European site or within/adjacent to offsite functionally linked habitat. Mobile species could include fish, bats and European otters for example.</p>
<p>Physical loss:</p> <ul style="list-style-type: none"> • Removal (including offsite effects, e.g. foraging habitat, and removal of supporting habitat within boundary of a SPA) • Smothering 	<p>Development of infrastructure associated with scheme, e.g. new or temporary pipelines, transport infrastructure.</p> <p>Indirect effects from a reduction in flows e.g. drying out marginal habitat.</p> <p>Physical loss is most likely to be significant where the boundary of the scheme extends within the boundary of the European site, or within an offsite area of known foraging, roosting, breeding habitat (that supports species for which a European site is designated).</p>
Physical damage:	Reduction in river flow leading to permanent and/ or

Broad categories of potential impacts on European sites, with examples	Examples of operations responsible for impacts (distance assumptions in italics)
<ul style="list-style-type: none"> • Sedimentation/ silting • Habitat degradation • Erosion • Fragmentation • Severance/barrier effect • Edge effects 	<p>temporary loss of available habitat, sedimentation/ siltation, fragmentation, etc.</p> <p>Physical damage is likely to be significant where the boundary of the scheme extends within or is directly adjacent to the boundary of the European site, or within/ adjacent to an offsite area of known foraging, roosting, breeding habitat (that supports species for which a European site is designated, or where natural processes link the scheme to the site, such as through hydrological connectivity downstream of a scheme, or the scheme impacts the linking habitat).</p>

3. Identification of Relevant European Sites

3.1 The protected site identification process

To understand the potential implications for European Sites from the implementation of the Draft Drought Plan it is necessary to identify those sites that are located close to the project or are linked by pathways such as hydrological connections.

All European Sites and European Marine Sites within 10 km of the project or linked by pathways were identified using Geographic Information System data from datasets downloaded from the JNCC, Magic and Natural England websites. The 10 km buffer was chosen based on the characteristics of the options and the likely effects. For completeness, if no sites were located within 10 km, the nearest site was then mapped to the project site.

3.1.1 Understanding qualifying interests and conservation objectives

For each of the sites identified the features were established and the conservation objectives for each feature were obtained. Information was also sought to understand the potential vulnerability of the features to any effects that might arise from the proposed project.

3.1.2 Identification of the potential effects of the project

Any potential pathways for effect on European Sites resulting from the proposed development were identified prior to consideration of best practice procedures (e.g. Guidelines for Pollution Prevention and CIRIA guidance) or the integration of any mitigation measures.

3.1.3 Identification of plans or projects considered for in-combination effects

An 'in-combination' assessment is required where the project may have an effect on a European Site, but on its own the effects would not be significant. The potential effects of the project should be considered in-combination with other plans or projects that similarly may have an effect, but where on their own those effects would not be significant. The combined effects may therefore become significant.

Details of other plans and projects which are currently proposed or consented within the vicinity of the European Sites identified were obtained to inform the in-combination assessment of the proposed project (Section 4.4).

3.1.4 Consideration of the significance of potential effects

The significance of potential effects was assessed in the absence of avoidance or other mitigation measures other than those which are standard construction practices such as pollution control or those incorporated into the scheme. The assessment has been made with awareness of the conservation objectives for the features of the European Sites.

In the assessment of the significance of effects, professional judgement was applied using the following criteria, as often insufficient information about the elements and interests is available:

- The vulnerability/ sensitivity of the receiving environment/ features of interest;
- When the risk of effects are likely to occur (e.g. construction and/ or operation);
- The likely geographical extent of the effects; and
- Likelihood of significant effects (e.g. those above negligible in magnitude) occurring based on previous experience with similar elements, where available.

Professional judgement was used in the carrying out of this work where professional guidance was not available. Where there was not enough information about the risk of qualifying interest being present, or of the risk of effects, the assessment used the precautionary principle⁹ to inform the judgement. The precautionary principle has been applied to ensure that any assessment errs on the side of caution, without being overly cautious. This principle means that the conservation objectives should prevail where there is uncertainty or that harmful effects will be assumed in the absence of evidence to the contrary.

⁹ The precautionary principle applies where scientific evidence is insufficient, inconclusive or uncertain and preliminary scientific evaluation indicates that there are reasonable grounds for concern that the potentially dangerous effects on the environment, human, animal or plant health may be inconsistent with the high level of protection chosen by the EU. EU (2000) Communication from the commission on the precautionary principle, COM1, Brussels: Commission of the European Communities.

4. HRA Screening Process

4.1 Screening

The term 'screening' is routinely adopted to describe the initial stage of the HRA. The purpose of screening is to:

- Identify all aspects of the Project that are not likely to have a significant effect on a European site, either alone or in combination with other aspects of the Project or other plans or projects. These can then be screened out from further assessment.
- Identify those aspects of the Project where it is likely to have a significant effect on a European site, either alone or in combination with other plans or projects. These aspects will require 'appropriate assessment' and mitigation measures may need to be introduced.

4.2 Likely significant effects

Current guidance defines a 'likely' effect as one that cannot be ruled out on the basis of objective information. In the Waddenzee case the European Court of Justice provides further clarity on this point, advising that a project (and a plan) should be subject to appropriate assessment if it cannot be excluded, on the basis of objective information, that it will have a significant effect on the site, either individually or in combination with other plans and projects¹⁰. Therefore, 'likely' should be interpreted as a significant effect that, objectively, cannot be ruled out.

An effect may be significant if it undermines the conservation objectives for the European site. The assessment of whether a potential effect is significant for the site's interest features must consider, amongst other things, the characteristics and specific environmental conditions of the site concerned. The Advocate General's Opinion for the Sweetman case¹¹ provides further clarification, stating that consideration of the likelihood of a significant effect is simply a case of determining whether the plan or project is capable of having a significant effect.

The overarching aim of the Natura 2000 network is to achieve favourable conservation status of habitats listed in Annex I and habitats of species listed Annex II of the Habitats Directive, and of regularly occurring migratory bird species and the species set out in Annex I of the Birds Directive. In considering whether a site's integrity will be affected, Member States must have regard to the site's conservation objectives. In this regard, the site's overall conservation objectives will extend beyond an isolated consideration of the Annex I habitats and Annex II species (or relevant bird species) contained within the site and take account of

¹⁰ See paragraph 45 of European Court of Justice case C-127/02 dated 7th September 2004, the 'Waddenzee ruling'.

¹¹ Sweetman v. An Bord Pleanála, Case C-258/11, CJEU judgment 11 April 2013.

the wider ecological context of the site as a whole in terms of its effects on the designated features.

At the same time, according to Sweetman, site integrity must be determined by reference to 'the lasting preservation of the constitutive characteristics of the site concerned that are connected to the presence of a priority natural habitat whose preservation was the objective justifying the designation of that site'. This case is able to show that the favourable conservation status of a listed natural habitat or of the habitat of a listed species (and linked to its site integrity) extends beyond focusing on merely protecting the natural habitat or the habitat of the species.

A further recent HRA judgment (Holohan & Ors. v An Bord Pleanála, 7 November 2018, C - 461/17) has also been considered within this assessment. In summary this judgement provides further clarification about the scope of an assessment, requiring that all habitats and species associated with a European site must be considered (irrespective of whether or not they are qualifying features) if impacts on those habitats and species are liable to affect the conservation objectives of the site.

4.3 Testing for Likely Significant Effects

A decision by the Court of Justice of the European Union (CJEU) 'People Over Wind and Sweetman v Coillte Teoranta' (C-323/17) (CJEU 2018) dictates that measures intended to avoid or reduce the harmful effects of a proposed project on a European site may no longer be taken into account by competent authorities at the HRA screening stage when judging whether a proposed plan or project is likely to have a significant effect on the integrity of a European designated site.

Consistent with C-323/17, the potential for interest features to be adversely impacted by the Project is initially assessed in the absence of design mitigation i.e. in the absence of those measures which are accepted or known impact reducing measures. Examples of design measures include those elements associated with an agreed surface water management strategy. By assessing LSE initially in this manner, a transparent assessment is ensured.

Should any interest feature fail the screening test, the entire site is taken through to HRA stage.

4.4 In-combination effects

A series of individually modest effects may in-combination produce effects that are likely to adversely affect the integrity of one or more European Sites. Article 6(3) of the Habitats Directive attempts to address this by considering the combination of effects from other plans or projects. Guidance in section 4.4.3 of 'Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC', published by the European Union, states:

'When determining likely significant effects, the combination of other plans or projects should also be considered to take account of cumulative impacts. It would seem appropriate to restrict the combination provision to other plans or projects which have been actually proposed'.

The hydrological impact assessment considered cumulative hydrological impacts of simultaneous deployment of options. Cumulative impacts that could arise with other non-public water supply abstractions are also considered, as are indirect impacts on water quality as a result of reduced dilution.

In accordance with the Habitats Regulations the review has therefore considered the in-combination effects of the drought options in the SSW Draft Drought Plan 2022 and a number of plans and projects, that could have an impact on the European sites identified within this HRA. The following plans and projects have been considered in the cumulative effects assessment:

- Inter-option effects within the SSW WRMP;
- National Policy Statements and National/ Regional Infrastructure Plans;
- Canal and River Trust abstraction from the River Severn (to support Bristol Water);
- EA Drought Plans;
- Water Resources West Regional Plan.

Other water company Water Resource Management Plans (WRMPs) and Drought Plans:

- Sever Trent Water Limited;
- Dŵr Cymru Welsh Water;
- Bristol Water;
- United Utilities Water;
- Yorkshire Water.

The assessment has used all publicly available information. It should also be noted that the water companies are at different stages of updating their WRMPs and Drought Plans and therefore further updates may be required to the HRA cumulative assessment as these become available between the draft and final submissions.

The findings of the in-combination impact assessments between each drought option and the schemes above can be found in Table 6-2 column 6: 'In combination effects with other options, plans and projects'.

5. Strategic level supporting studies

5.1 Environment Agency Drought Plan

The EA, with Natural Resources Wales, operate the River Severn Regulation to balance the demands of water abstraction with the requirements of the environment, including protecting the downstream Severn Estuary European Marine Site. The Clywedog Reservoir Act (1963) requires that flow in the River Severn is maintained at 850 MI/d (over a five day average) at the Bewdley gauging station, to provide adequate freshwater flow in the estuary and to meet other demands.

During drought, water levels in the Llyn Clywedog reservoir can become seriously low and a River Severn Drought Order (RSDO) may be applied for¹⁷. The RSDO reduces the quantity of water released from the reservoir and restricts abstraction from the River Severn. In relation to the River Severn Regulation Scheme, the EA has identified the potential requirement to apply for a drought order to modify some of the legal requirements pertaining to the Regulation Scheme.

The EA's River Severn Drought Order proposal includes:

- reducing the River Severn Regulation Scheme prescribed flow at Bewdley from 850 MI/d to 730 MI/d;
- capping the maximum release from Clywedog for the River Severn Regulation Scheme at 300 MI/d instead of 500 MI/d;
- imposing a 5% reduction on non-spray irrigation licensed abstractions; and
- imposing restrictions on the Canal and River Trust abstractions for the Montgomery Canal in Wales and the Gloucester and Sharpness Canal in England (restricting abstraction to 300 MI/d).

Although the modelling of the in-combination effects of the RSDO with other water company drought orders/ permits has so far concluded no LSE, there are uncertainties surrounding the hydrological understanding and impact to habitats and species, but which should be clarified through the work of Water Resources West (WRW); see below.

5.2 Canal and River Trust Gloucester and Sharpness Canal abstraction

The Canal and River Trust (CRT) abstraction to the Gloucester and Sharpness Canal has been subject to a Stage 2 Appropriate Assessment due to the potential impacts on flows into the estuary. Work was also undertaken as part of the RSDO to understand in-combination effects between the operation of the RSDO, the abstraction for the canal and other water company drought permits and orders. To ensure compliance with the Habitats Regulations, it was identified that a cap on the canal abstraction would be required when in operation alongside the RSDO and other drought permits/ orders. This cap (c. 300 MI/d) when flows drop below 1,200 MI/d at Deerhurst flow gauging station was concluded as required to ensure no in-combination adverse effects.

If the River Severn at the River Severn works drought permits were active before the Environment Agency's RSDO, the restriction on the Gloucester and Sharpness Canal abstraction would not be applied. However, under this scenario the River Severn would be under regulation, such that the additional abstraction at the River Severn works would be offset by maintenance of the 5 day average 850 MI/d flow requirement at Bewdley by the Environment Agency. Therefore, there should be negligible effect of the River Severn works drought permits (alone or in combination)¹²; however, this is under the expectation that the Gloucester and Sharpness Canal abstraction would be restricted to c. 300 MI/d.

5.3 Water Resources West

WRW is one of five Regional Planning Groups working under the National Framework for Water Resources¹³ to develop a long-term integrated water management plan for Western England. As required by the National Framework, WRW's key focus through to September 2023 is on developing a single, multisector best value adaptive Regional Plan for water management across Western England and Wales. The region spans some of the biggest shared catchments in England and Wales, including the Dee, the Severn and the Wye. To achieve this, WRW are working with water companies, Local Authorities and Local Enterprise Partnerships, the energy and agricultural sectors, landowners and environmental non-government organisations (eNGOs).

WRW are investigating a significant number of supply options, including opportunities for new or optimised options across the region and opportunities to transfer water in from neighbouring regions. Opportunities have also been investigated to transfer water out of the region where the need arises, working collaboratively with the other Regional Groups and via the National Framework to deliver a plan for the whole country. For example, the Strategic Resource Option Severn Thames Transfer (STT) is a joint venture by STWL, Thames Water and United Utilities. The STT involves the transfer of raw water from the River Severn to the River Thames via either canal or a new interconnector pipeline. It also involves the development of water resources options by United Utilities and STWL to make water available for transfer. Construction work is unlikely to commence until the early 2030s and therefore operation will be outside the period of this Drought Plan.

Alignment between the WRW Regional Plan and water company WRMP24 submissions is critical for the success of WRW. To manage the related risks and issues, WRW water companies (including SSW) will help determine how outputs from the regional planning process will be taken up and used in WRMP24 as well as the related 2024 Periodic Review (PR24) Business Plans. WRW are currently on track to publish an advanced draft Regional Plan in August 2022, at the same time as the first draft of WRMP24.

¹² ESI Ltd (September 2015) Drought Permit Environmental Assessment Report: River Severn at Site G

¹³ <https://www.gov.uk/government/publications/meeting-our-future-water-needs-a-national-framework-for-water-resources>

Therefore, at this time, resource options identified through WRW to increase regional resilience to droughts are not yet sufficiently developed to be included in water company plans (WRMP or Drought) just yet. If there is any change to the SSW resource position through the WRW process, SSW would need to consider replacing loss to deployable output or abstraction licences through the WRMP24 process and Drought Plan (for example, with temporary drought permits to provide additional supplies during drought periods). These changes would constitute a material change in circumstances and would require a revision of this drought plan and this HRA Screening, within 12 months of publishing this plan.

5.4 Water Industry National Environment Programme

The supply-side actions ensure SSW optimise operations so that the deployable output (DO) stated in the current SSW WRMP (WRMP19) is available and those actions utilise existing licences, granted by the EA.

SSW are currently in the process of reviewing their WRMP ahead of publishing a draft plan in 2022 and working with WRW on the regional plan. As part of this, SSW are screening further options to maintain future security of supply. SSW may propose some of these options as future drought options if they are deemed necessary to maintain sufficient headroom in deployable output, or as drought permits. The need for drought permits and for considering additional drought options will depend on the review of deployable output, and reductions to this, as a result of licence changes arising from future WINEP requirements.

In the Draft Drought Plan 2022, SSW has followed the Environment Agency's guidance on environmental assessments¹⁴, identifying likely changes to flows and impacts from supply-side actions on the environment and assessing the sensitivity any likely impact.

SSW has identified two supply side options where applications for drought permits or orders may be appropriate. Each site requires an environmental assessment report (EAR), which assesses the potential impacts on the water environment from implementing the proposed drought permit or order. The EAR identifies appropriate mitigation measures and sets out an Environmental Monitoring Plan (EMP) to determine the effect of the operation of the drought permit or order.

Additionally, the situation with groundwater abstraction licensing is currently uncertain as SSW are working with the Environment Agency to investigate current sources in the context of not causing deterioration as defined by the Water Framework Directive (WFD). As a result, SSW are not in a position to include firm proposals for groundwater drought permits within this Draft Drought Plan.

¹⁴ Environmental Assessment for water company drought planning – supplementary guidance', Environment Agency, July 2020.

6. HRA Screening Results

The HRA of the Drought Plan screened all of the drought options in the SSW WRZ. A total of 24 options (demand side, supply side options) were screened. This provided an indication of the schemes that may be likely to have a significant effect on a European site(s). The HRA screening matrix for this assessment is presented in Table 6-1 to Table 6-3.

In combination effects were assessed and are documented in the matrix.

Table 6-1 Screening of Demand Side Drought Options for Impacts on European Sites

Option	Likely Significant Effect and Potential for Alteration of Measure to Avoid Effects?	Further HRA Assessment?
Enhanced communications	None – media/ water efficiency campaign includes increased water efficiency messages via increased customer communications. No impacts on designated sites are anticipated, other than to acknowledge that decreased consumer demand will have a net positive effect in combination with existing abstraction and/ or drought option sites that have the potential to impact European sites due to reduced pressure on water resources and reduced abstraction at source.	No
Additional promotion of water efficiency	None – media/ water efficiency campaign includes increased water efficiency messages via increased customer communications. No impacts on designated sites are anticipated, other than to acknowledge that decreased consumer demand will have a net positive effect in combination with existing abstraction and/ or drought option sites that have the potential to impact European sites due to reduced pressure on water resources and reduced abstraction at source.	No
Enhanced leakage reductions	None - it is envisaged that leakage detection and repair schemes will largely be undertaken primarily in urban areas. No impacts on designated sites are anticipated, other than to acknowledge that decreased consumer demand will have a net positive effect in combination with existing abstraction and/ or drought option sites that have the potential to impact European sites due to reduced pressure on water resources and reduced abstraction at source.	No
Appeals for restraint	None – media/ water efficiency campaign includes increased water efficiency messages via increased customer communications. No impacts on designated sites are anticipated, other than to acknowledge that decreased consumer demand will have a net positive effect in combination with existing abstraction and/ or drought option sites that have the potential to impact European sites due to reduced pressure on water resources and reduced abstraction at source.	No
Implementation of temporary use bans (TUBs)	None – TUBs, or any restrictions on consumer water use, are demand management measures and as such, are not anticipated to have impacts on European sites. Decreased consumer demand will have a net positive effect in combination with existing abstraction and/ or drought option sites that have the potential to impact European sites, due to reduced pressure on water resources and reduced abstraction at source.	No
Ordinary Drought Order – non-essential use bans (NEUBs)	None – a non-essential use ban and its components are demand management measures and as such are not anticipated to have impacts on European sites. Decreased consumer demand will have a net positive effect in combination with existing abstraction and/ or drought option sites that have the potential to impact European sites due to reduced pressure on water resources and reduced abstraction at source.	No
Removal of Exemptions	None – removal of TUBs and NEUBs exemptions, such as afforded to Blue badge holders, or using a hosepipe to fill or maintain a pond containing fish, are demand management measures and as such are not anticipated to have impacts on European sites. Decreased consumer demand will have a net positive effect in combination with existing abstraction and/ or drought option sites that have the potential to impact European sites due to reduced pressure on water resources and reduced abstraction at source.	No
Tariff changes	None – imposing higher tariffs for use over an allowed threshold, for example, is a demand management measure and as such are not anticipated to have impacts on European sites. Decreased consumer demand will have a net positive effect in combination with existing abstraction and/ or drought option sites that have the potential to impact European sites due to reduced pressure on water resources and reduced abstraction at source.	No
Media and communications	None – increased methods and tone to communicate water efficiency measures are demand management measures and as such are not anticipated to have impacts on European sites. Decreased consumer demand will have a net positive effect in combination with existing abstraction and/ or drought option sites that have the potential to impact European sites due to reduced pressure on water resources and reduced abstraction at source.	No
Relocation of water users	None – relocating certain commercial users will depend on the availability of water resources elsewhere and the scale of compensation offered. Users would not be offered relocation to areas where increased water would impact on European sites i.e. just relocating the problem.	No
Shut down of manufacturing/ large users	None – the success of appealing to commercial large users to cease water using activities will depend on the scale of	No

Option	Likely Significant Effect and Potential for Alteration of Measure to Avoid Effects?	Further HRA Assessment?
	compensation offered. Decreased consumer demand will have a net positive effect in combination with existing abstraction and/ or drought option sites that have the potential to impact European sites due to reduced pressure on water resources and reduced abstraction at source.	
Non potable use	None – the success of the capture of water for re-use at scale or in domestic setting, i.e. rainwater harvesting systems, will depend on a number of factors, such as overcoming water quality concerns and health concerns, and meteorological reliance during a dry/ drought period. However, decreased consumer demand will have a net positive effect in combination with existing abstraction and/ or drought option sites that have the potential to impact European sites due to reduced pressure on water resources and reduced abstraction at source.	No

Table 6-2 Screening of Company-wide Supply Side Drought Options for Impacts on European Sites

Option	Likely Significant Effect and Potential for Alteration of Measure to Avoid Effects?	Further HRA Assessment?
Outage reduction	None - proactive asset management maintenance programme to keep outage to a minimum and raise operational response priorities. Actions do not deliver additional savings; the objective is to ensure the full deployable output under dry year conditions is available. No impacts on designated sites are anticipated, other than to acknowledge that decreased outage will have a net positive effect in combination with existing abstraction and/ or drought option sites that have the potential to impact European sites due to reduced pressure on water resources and reduced abstraction at source.	No
Tankering	None - Moving water from areas with surplus and injecting into networks or storage. No impacts on designated sites are anticipated, other than to acknowledge that tankering will have a net positive effect in combination with existing abstraction and/ or drought option sites that have the potential to impact European sites due to reduced pressure on water resources and reduced abstraction at specific sources.	No
Effluent re-use	None - redirecting discharges to supply for potable or non-potable use. No impacts on designated sites are anticipated, other than to acknowledge that re-use of water will have a net positive effect in combination with existing abstraction and/ or drought option sites that have the potential to impact European sites due to reduced pressure on water resources and reduced abstraction at source.	No
Network changes	None - overland or temporary pipelines for new supplies. No impacts on designated sites are anticipated, other than to acknowledge that re-distributing water will have a net positive effect in combination with existing abstraction and/ or drought option sites that have the potential to impact European sites due to reduced pressure on water resources and reduced abstraction at source.	No

Table 6-3 Screening of Site Specific Supply Side Drought Options for Impacts on European Sites

Option	European Site within zone of minor, moderate or major hydrological impact ¹⁵	Qualifying features (European sites)	Potential for effects on qualifying features/ main habitats	Potential likely significant effect of scheme on European site(s) alone?	In combination effects with other options, plans and projects	Conclusion
Conserving Blithfield Reservoir	Midland Meres & Mosses – Phase 1 Ramsar West Midlands Mosses SAC 6.7 km north west (from Blithfield Reservoir impoundment)	Natural dystrophic lakes and ponds Transition mires and quaking bogs The West Midlands Mosses comprise four sites supporting large basin mires which have developed as quaking bogs, known as Schwingmoors, together with a variety of associated hollows and pools showing various types and stages of mire development. This complexity of habitats gives rise to a diverse assemblage of associated plants and invertebrates of national significance.	The site is approximately 7 km upstream of Blithfield Reservoir within the same catchment. Therefore, there is no plausible hydraulic continuity between the reservoir and the site.	None	None	No Likely Significant Effect
Reviewing the potential for bulk supplies and transfers with STWL	Not applicable.	Not applicable.	SSW currently supply and receive small volumes of water to and from STWL at the edges of the supply area. The largest transfer is as part of a joint abstraction licence and supplies water from the River Severn Works to Wolverhampton in Severn Trent's supply area. In the event of a drought, we will liaise with Severn Trent to ensure licence compliance. There are also three bulk supply agreements with STWL allowing water to be transferred in emergencies or for planned maintenance during periods of low customer demand. However, it is unlikely that these supplies will be available to either company in a drought other than under very restricted and short-term conditions. The water for such transfers would be subject to licence conditions and as such qualifying features of designated sites would be protected.	None	None	No Likely Significant Effect
Operating River Blithe pump back and using Brindley	Midland Meres & Mosses – Phase 1 Ramsar	Natural dystrophic lakes and ponds	The site is approximately 7 km upstream of Blithfield Reservoir within the same catchment.	None	None	No Likely Significant Effect

¹⁵ The distance given is to the nearest element of the drought option e.g., impacted reaches or constructional element) and the designated site.

Option	European Site within zone of minor, moderate or major hydrological impact ¹⁵	Qualifying features (European sites)	Potential for effects on qualifying features/ main habitats	Potential likely significant effect of scheme on European site(s) alone?	In combination effects with other options, plans and projects	Conclusion
Bank – drought permit	West Midlands Mosses SAC 6.7 km north west (from Blithfield Reservoir impoundment)	Transition mires and quaking bogs The West Midlands Mosses comprise four sites supporting large basin mires which have developed as quaking bogs, known as Schwingmoors, together with a variety of associated hollows and pools showing various types and stages of mire development. This complexity of habitats gives rise to a diverse assemblage of associated plants and invertebrates of national significance.	Therefore, there is no plausible hydraulic continuity between the reservoir, Brindley Bank borehole, and the site.			
River Severn at the River Severn works – drought permit #1	Severn Estuary/ Môr Hafren SAC Severn Estuary SPA and Severn Estuary Ramsar River Wye SAC	Severn Estuary/ Môr Hafren SAC: Estuaries; Mudflats and sandflats not covered by seawater at low tide; Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>); Sandbanks which are slightly covered by sea water all the time; Reefs; Sea lamprey <i>Petromyzon marinus</i> ; River lamprey <i>Lampetra fluviatilis</i> ; Twaite shad <i>Alosa fallax</i> . Severn Estuary SPA: Cygnus <i>columbianus bewickii</i> ; Bewick's swan (Non-breeding); <i>Tadorna tadorna</i> ; Common shelduck (Non-breeding); <i>Anas strepera</i> ; Gadwall (Non-breeding); <i>Calidris alpina alpina</i> ; Dunlin (Non-breeding); <i>Tringa totanus</i> ; Common redshank (Non-breeding); <i>Anser albifrons albifrons</i> ; Greater white-fronted goose (Non-breeding); Waterbird assemblage. The SPA is a part of the Severn Estuary European Marine Site (EMS). River Wye SAC: Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation; White-clawed (or Atlantic stream) crayfish <i>Austropotamobius pallipes</i> ; Sea lamprey <i>Petromyzon marinus</i> ; Brook lamprey <i>Lampetra planeri</i> ; River lamprey <i>Lampetra</i>	The abstraction is on the River Severn and therefore in hydrological connectivity with the Severn Estuary downstream. The River Severn regulation scheme, however, ensures that a prescribed flow is maintained to the estuary to protect the European Marine Site. Consequently, the protection of the Severn Estuary would likewise ensure the protection of the River Wye SAC and its habitats and species.	None. The abstraction licence at the River Severn Works is restricted when the River Severn is under River Regulation (when water is being released to support the river), and when the EA has implemented its own drought order on the River Severn (requiring a 5% reduction in abstraction licences on the river). The option would enable a 5% increase in abstraction licence (restoring the level of abstraction permitted before the EA drought order). This would restore the output of the River Severn Works to 192 Ml/d. The Severn Estuary was assessed within the HRA of the River Severn Drought Scheme (RSDO) environmental assessment work in 2012 ¹⁶ . The report concluded that no significant effects are likely as a result of the River Severn Works drought plan proposals 'alone'. Consequently, the protection of	None. Modelling undertaken by the EA for the RSDO HRA ¹⁷ did not indicate any significant in-combination effects on river flow or the Severn Estuary, if an abstraction cap of 300 Ml/d is set for the CRT Gloucester and Sharpness canal abstraction when discharge drops below river 1200 Ml/d at Deerhurst. However, given the complexity of the abstractions on the River Seven, and need for several drought permits/ orders to operate concurrently in an extreme drought event, updated hydrological modelling would be required to support the drought permits/ orders HRA's if this scenario were to occur, taking account of the preceding baseline conditions to fully assess whether adverse effects would arise. Sufficient time would be available to complete this work given the preceding drought actions to be taken, and triggers to be met to instigate the second drought order. The protection of the Severn Estuary would likewise ensure the protection of the River Wye SAC and its habitats and species.	No Likely Significant Effect

¹⁶ Review and Update of Drought Permit Environmental Assessment Report: River Severn at River Severn Works HRA. Report 60757 R1D2 Appendix B, ESI November 2012

¹⁷ Environment Agency (2013) Habitats Regulations Assessment (River Severn Drought Order) Version 3 - December 2013. Accessed at LIT_9037_277624.pdf (publishing.service.gov.uk)

Option	European Site within zone of minor, moderate or major hydrological impact ¹⁵	Qualifying features (European sites)	Potential for effects on qualifying features/ main habitats	Potential likely significant effect of scheme on European site(s) alone?	In combination effects with other options, plans and projects	Conclusion
		<i>fluviatilis</i> ; Twaite shad <i>Alosa fallax</i> ; Atlantic salmon <i>Salmo salar</i> ; Bullhead <i>Cottus gobio</i> ; Otter <i>Lutra lutra</i> ; Allis shad <i>Alosa alosa</i> .		the Severn Estuary would likewise ensure the protection of the River Wye SAC and its habitats and species.		
River Severn at the River Severn works – drought permit #2	Severn Estuary/ Môr Hafren SAC Severn Estuary SPA and Severn Estuary Ramsar	<p>Severn Estuary/ Môr Hafren SAC: Estuaries; Mudflats and sandflats not covered by seawater at low tide; Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>); Sandbanks which are slightly covered by sea water all the time; Reefs; Sea lamprey <i>Petromyzon marinus</i>; River lamprey <i>Lampetra fluviatilis</i>; Twaite shad <i>Alosa fallax</i>.</p> <p>Severn Estuary SPA: <i>Cygnus columbianus bewickii</i>; Bewick's swan (Non-breeding); <i>Tadorna tadorna</i>; Common shelduck (Non-breeding); <i>Anas strepera</i>; Gadwall (Non-breeding); <i>Calidris alpina alpina</i>; Dunlin (Non-breeding); <i>Tringa totanus</i>; Common redshank (Non-breeding); <i>Anser albifrons albifrons</i>; Greater white-fronted goose (Non-breeding); Waterbird assemblage.</p> <p>The SPA is a part of the Severn Estuary European Marine Site (EMS).</p> <p>River Wye SAC: Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation; White-clawed (or Atlantic stream) crayfish <i>Austropotamobius pallipes</i>; Sea lamprey <i>Petromyzon marinus</i>; Brook lamprey <i>Lampetra planeri</i>; River lamprey <i>Lampetra fluviatilis</i>; Twaite shad <i>Alosa fallax</i>; Atlantic salmon <i>Salmo salar</i>; Bullhead <i>Cottus gobio</i>; Otter <i>Lutra lutra</i>; Allis shad <i>Alosa alosa</i>.</p>	<p>The abstraction is on the River Severn and therefore in hydrological connectivity with the Severn Estuary downstream. The River Severn regulation scheme, however, ensures that a prescribed flow is maintained to the estuary to protect the European Marine Site.</p> <p>Consequently, the protection of the Severn Estuary would likewise ensure the protection of the River Wye SAC and its habitats and species.</p>	<p>None. SSW would consider applying for a drought order to increase the level of abstraction up to 216 Ml/d. This would enable the conservation of bankside storage reservoir levels and allow full use of maximum treatment capacity at the River Severn Works during the critical drought period. It is also possible that the second option may be required during implementation of an EA drought order and this has been used to define the maximum environmental impact case.</p> <p>The Severn Estuary SAC and Ramsar site were assessed within the HRA of the River Severn Drought Scheme (RSDO) environmental assessment work in 2012¹⁶. The report concluded that no significant effects are likely as a result of the River Severn Works drought plan proposals 'alone'.</p> <p>Consequently, the protection of the Severn Estuary would likewise ensure the protection of the River Wye SAC and its habitats and species.</p>	<p>None. Modelling undertaken by the EA for the RSDO HRA¹⁷ did not indicate any significant in-combination effects on river flow or the Severn Estuary, if an abstraction cap of 300 Ml/d is set for the CRT Gloucester and Sharpness canal abstraction when discharge drops below river 1200 Ml/d at Deerhurst. However, given the complexity of the abstractions on the River Severn, and need for several drought permits/ orders to operate concurrently in an extreme drought event, updated hydrological modelling would be required to support the drought permits/ orders HRA's if this scenario were to occur, taking account of the preceding baseline conditions to fully assess whether adverse effects would arise. Sufficient time would be available to complete this work given the preceding drought actions to be taken, and triggers to be met to instigate the second drought order.</p> <p>The protection of the Severn Estuary would likewise ensure the protection of the River Wye SAC and its habitats and species.</p>	No Likely Significant Effect
Groundwater drought permits	Not applicable.	Not applicable.	In a dry year SSW water resources are supplied approximately equally from surface water and groundwater sources linked by an extensive strategic mains network. SSW operate 26 groundwater sources, which are largely unaffected by drought and in turn do not impact designated sites.	None	None	No Likely Significant Effect
Mothballed sites (Sandhills, Shenstone, Hulme Springs)	Sandhills borehole/ Cannock Extension Canal SAC. 4.8 km west	Cannock Extension Canal SAC: Floating water-plantain <i>Luronium natans</i> . Cannock Extension Canal in central England is an example of anthropogenic,	Sandhills and Shenstone boreholes/ Cannock Extension Canal SAC. There is no construction related to this option and no operational	None	None	No Likely Significant Effect

Option	European Site within zone of minor, moderate or major hydrological impact ¹⁵	Qualifying features (European sites)	Potential for effects on qualifying features/ main habitats	Potential likely significant effect of scheme on European site(s) alone?	In combination effects with other options, plans and projects	Conclusion
	<p>Shenstone borehole/ Cannock Extension Canal SAC. 8.2 km west</p> <p>Hulme Springs borehole/ Peak District Dales SAC. 8.5 km north east</p>	<p>lowland habitat supporting floating water-plantain <i>Luronium natans</i> at the eastern limit of the plant's natural distribution in England</p> <p>Peak District Dales SAC: Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>).</p> <p>Tilio-Acerion forests of slopes, screes and ravines.</p> <p>European dry heaths.</p> <p>Calaminarian grasslands of the <i>Violetalia calaminariae</i>.</p> <p>Calcareous and calcshist screes of the montane to alpine levels (<i>Thlaspietea rotundifolii</i>)</p> <p>Calcareous rocky slopes with chasmophytic vegetation.</p> <p>White-clawed (or Atlantic stream) crayfish <i>Austropotamobius pallipes</i>..</p> <p>Brook lamprey <i>Lampetra planeri</i>.</p> <p>Bullhead <i>Cottus gobio</i>.</p>	<p>impacts have been identified. There is no direct hydraulic continuity between the boreholes and the site.</p> <p>Hulme Springs borehole/ Peak District Dales SAC. There is no construction related to this option and no operational impacts have been identified. There is no direct hydraulic continuity between the boreholes and the site.</p>			
<p>Operating Blithfield Reservoir at low levels</p>	<p>Midland Meres & Mosses – Phase 1 Ramsar</p> <p>West Midlands Mosses SAC</p> <p>6.7 km north west (from Blithfield Reservoir impoundment)</p>	<p>Natural dystrophic lakes and ponds</p> <p>Transition mires and quaking bogs</p> <p>The West Midlands Mosses comprise four sites supporting large basin mires which have developed as quaking bogs, known as Schwingmoors, together with a variety of associated hollows and pools showing various types and stages of mire development. This complexity of habitats gives rise to a diverse assemblage of associated plants and invertebrates of national significance.</p>	<p>The site is approximately 7 km upstream of Blithfield Reservoir within the same catchment. Therefore, there is no plausible hydraulic continuity between the reservoir and the site.</p>	<p>None</p>	<p>None</p>	<p>No Likely Significant Effect</p>

7. Conclusions

7.1 Screening stage

Screening for Likely Significant Effect on European sites overlapping/ located adjacent to the SSW Draft Drought Plan 2022 area has been carried out as required under European and UK law.

The screening process has concluded that the Draft Drought Plan will not result in a Likely Significant Effect on the interest features on European sites.

7.2 Summary

It is concluded that the SSW Draft Drought Plan 2022 will have no adverse effect on any European designated sites, either alone or in combination with other Plans or Projects.

7.3 Future updates

WRW are investigating a significant number of supply options, including opportunities for new or optimised options across the region and opportunities to transfer water in from neighbouring regions.

When there is a change to the current licensing and resource position, SSW may need to consider replacing loss to DO or abstraction licences with temporary drought permits to provide additional supplies during drought periods. This would constitute a material change in circumstances and would require a further revised drought plan (and HRA) to be produced within 12 months of publishing the Draft Drought Plan 2022.

Appendix 1 Stage 1 Screening of Drought Measures

Special Areas of Conservation (SACs)

West Midlands Mosses SAC

European Site name:	West Midlands Mosses SAC (UK0013595)	
Designation type: (SAC, SPA, Ramsar):	SAC	
Qualifying features:	<p>West Midlands Mosses SAC contains three pools, one at Clarepool Moss and two at Abbots Moss, that are examples of dystrophic lakes and ponds in the lowlands of England and Wales, where this habitat type is rare. The lake at Clarepool Moss is unusual as a dystrophic type on account of its relatively base-rich character, which is reflected in the presence of a diverse fauna and flora. The two at Abbots Moss are more typical, base-poor examples. The dystrophic lakes and ponds at this site are associated with Schwingmoor development, a characteristic of this habitat type in the West Midlands. Schwingmoor is an advancing floating raft of bog-moss Sphagnum, often containing NVC type M3 <i>Eriophorum angustifolium</i> bog pool community, which grows from the edge of the pool and can completely cover over the pool; the site has also been selected for this Annex I feature (7140 Transition mires and quaking bogs).</p> <p>Annex I habitats that are a primary reason for selection of this site</p> <p>3160 Natural dystrophic lakes and ponds Acid peat-stained lakes and ponds.</p> <p>7140 Transition mires and quaking bogs Very wet mires often identified by an unstable `quaking` surface.</p> <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site Not Applicable</p> <p>Annex II species that are a primary reason for selection of this site Not Applicable</p> <p>Annex II species present as a qualifying feature, but not a primary reason for site selection Not Applicable</p>	Water Dependent? Yes
Conservation objectives:	<p>Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;</p> <ul style="list-style-type: none"> • The extent and distribution of qualifying natural habitats; • The structure and function (including typical species) of qualifying natural habitats; and • The supporting processes on which qualifying natural habitats rely. 	
Sensitivities of Qualifying Features:	<p>The component sites have been all modified by human activity to a greater or lesser extent, including drainage, peat cutting and nutrient enrichment, generally to the detriment of the natural features. The restoration of the sites to achieve the best outcomes for the SAC features requires re-naturalisation of the hydrological processes that created them, in terms of both water quality/ chemistry and the water supply mechanisms, including groundwater and surface water regimes. This is because changes in source, depth, duration, frequency, magnitude and timing of water supply can have significant implications for the assemblage of characteristic plants and animals present. Hydrological restoration is required, through blocking/ infilling of drainage ditches and reduction of woodland cover.</p> <p>The habitat types are considered sensitive to changes in air quality. Exceedance of critical values for air pollutants may modify the chemical status of its substrate, accelerating or damaging plant growth, altering its vegetation structure and composition and causing the loss of sensitive typical species associated with it.</p> <p>West Midland Mosses is currently subject to nutrient pressures, principally from agriculture, forestry and development.</p> <p>The overall vulnerability of this SAC to climate change has been assessed by Natural England as being high, taking into account the sensitivity, fragmentation, topography and management of its habitats.</p>	
Overlapping or adjacent SSSIs:	<p>Clarepool Moss SSSI; Chartley Moss SSSI; Abbots Moss SSSI; Wybunbury Moss SSSI.</p> <p>Additionally, Midland Meres & Mosses Phase 1; Midland Meres & Mosses Phase 2.</p>	

Site Improvement Plan (only threats and actions relevant to the Drought Plan):	<ol style="list-style-type: none"> 1. Water Pollution - establish effective buffer areas and increase the area of low input land use in the catchments; 2. Hydrological changes - Mitigate the impact of historic site drainage networks through improved water management structures allowing naturalised water levels; 3. Air Pollution: impact of atmospheric nitrogen deposition - Reduce the impact of nitrogen deposition; 4. Climate change - Investigate the potential effects of climate change on vegetation/ species
--	---

Option:	Screening assessment	LSE alone?	If no LSE alone: Residual low-level effect requiring incombination assessment?
Conserving Blithfield Reservoir	<p>Construction: There is no construction related to this option.</p> <p>Operation: There are considered to be no operational impacts.</p> <p>The SAC is approximately 7 km upstream of Blithfield Reservoir within the same catchment. Therefore, there is no plausible hydraulic continuity between the reservoir and the SAC.</p>	No	No
Operating River Blithe pump back and using Brindley Bank – drought permit	<p>Construction: There is no construction related to this option.</p> <p>Operation: There are considered to be no operational impacts.</p> <p>The SAC is approximately 7 km upstream of Blithfield Reservoir within the same catchment. Therefore, there is no plausible hydraulic continuity between the reservoir, Brindley Bank borehole, and the site.</p>	No	No
Operating Blithfield Reservoir at low levels	<p>Construction: There is no construction related to this option.</p> <p>Operation: There are considered to be no operational impacts.</p> <p>The SAC is approximately 7 km upstream of Blithfield Reservoir within the same catchment. Therefore, there is no plausible hydraulic continuity between the reservoir and the SAC.</p>	No	No

Cannock Extension Canal SAC

European Site name:	Cannock Extension Canal SAC (UK0012672)	
Designation type: (SAC, SPA, Ramsar):	SAC	
Qualifying features:	<p>Cannock Extension Canal in central England is an example of anthropogenic, lowland habitat supporting floating water-plantain <i>Luronium natans</i> at the eastern limit of the plant's natural distribution in England. A very large population of the species occurs in the Canal, which has a diverse aquatic flora and rich dragonfly fauna, indicative of good water quality. The low volume of boat traffic on this terminal branch of the Wyrley and Essington Canal has allowed open-water plants, including floating water-plantain, to flourish, while depressing the growth of emergents.</p> <p>Annex I habitats that are a primary reason for selection of this site Not Applicable</p> <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site Not Applicable</p> <p>Annex II species that are a primary reason for selection of this site 1831 Floating water-plantain <i>Luronium natans</i></p> <p>Annex II species present as a qualifying feature, but not a primary reason for site selection Not Applicable</p>	<p>Water Dependent?</p> <p>Yes</p>
Conservation objectives:	<p>Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;</p> <ul style="list-style-type: none"> • The extent and distribution of the habitats of qualifying species • The structure and function of the habitats of qualifying species • The supporting processes on the habitats of qualifying species rely • The populations of qualifying species, and, • The distribution of qualifying species within the site. 	
Sensitivities of Qualifying Features:	<p>Floating water-plantain <i>Luronium natans</i> is intolerant of competition from other plants and occurs in a range of freshwater habitats – oligotrophic and mesotrophic lakes, slow flowing rivers and associated floodplain pools and small pools in heathland.</p> <p>INNS plant species (such as New Zealand pigmyweed <i>Crassula helmsii</i>, Floating pennywort <i>Hydrocotyle ranunculoides</i>, Parrot feather watermilfoil <i>Myriophyllum aquaticum</i>, Water fern <i>Azolla filiculoides</i>) are highly competitive and will impact negatively on floating water-plantain <i>Luronium natans</i>, which is not competitive.</p> <p>Water clarity is an indicator of light availability for submerged plants. Elevated turbidity levels will have adverse impacts on submerged plant communities. This may be the result of, for example, suspended solids resulting from disturbance by boats, high phytoplankton densities, the presence of bottom feeding fish and inputs of silt-laden drainage water after rain can also cause loss of clarity.</p> <p>700m of the southern end of unit 1 (of the site) is very turbid (between the old colliery basins and Wyrley Grove Bridge) due to a build-up over the years of very fine sediments contained in run-off from colliery shale waste on Wyrley Common. Once these very fine, unconsolidated sediments are disturbed it takes longer for the water to clear than if the sediments were coarser. The situation has been improving over the last few years due to mitigation works on Wyrley Common but water clarity and thus aquatic plant cover is still much poorer in this section than in the other parts of the site. On-site conservation measures to address this issue include additional dredging and shade reduction works (from shading trees) along critical sections of the canal.</p> <p>Poor water quality and inadequate quantities of water can adversely affect habitat(s) on which the SAC features depend. Floating water-plantain <i>Luronium natans</i> is sensitive to competition for light and nutrients from other plant species. The loss or reduction in the disturbance regime that would normally arrest succession is particularly significant. In canals the disturbance regime is related to dredging (removal of sediments) and boat traffic.</p> <p>Species-richness of the canal as a whole depends not only on water quality but also on the intensity of boat traffic and channel management. In the absence of management unused and derelict canals become overgrown with emergent vegetation and lose the open water element of their flora. Heavily used canals lose much of their submerged and floating-leaved vegetation because the water column becomes turbid and plants are chewed up by propellers and uprooted by the passage of boats. Dredging is an important management tool to increase the distance between boats and the bottom of the canal bed/ silt. Annual boat traffic movements are currently to be confirmed for the Cannock Extension Canal. The Canal and River Trust dredge the Cannock Extension Canal as</p>	

	<p>part of their national dredging programme with additional dredging works, as identified by recent survey, being undertaken as one of the conservation measures for the site.</p> <p>The overall vulnerability of this particular SAC to climate change has been assessed by Natural England as being high taking into account the sensitivity, fragmentation, topography and management of its habitats/ supporting habitats.</p> <p>This habitat type is considered sensitive to changes in air quality. Exceedance of these critical values for air pollutants may modify the chemical status of its substrate, accelerating or damaging plant growth, altering its vegetation structure and composition and causing the loss of sensitive typical species associated with it.</p>
Overlapping or adjacent SSSIs:	Cannock Extension Canal SSSI
Site Improvement Plan (only threats and actions relevant to the Drought Plan):	<ol style="list-style-type: none"> 1. Water Pollution - Assess and reduce sediment inputs and diffuse pollution; 2. Air Pollution: risk of atmospheric nitrogen deposition.

Option:	Screening assessment	LSE alone?	If no LSE alone: Residual low-level effect requiring incombination assessment?
Sandhills borehole	<p>Construction: There is no construction related to this option.</p> <p>Operation: There are considered to be no operational impacts.</p> <p>There is no direct hydraulic continuity between the borehole and the site.</p>	No	No
Shenstone borehole	<p>Construction: There is no construction related to this option.</p> <p>Operation: There are considered to be no operational impacts.</p> <p>There is no direct hydraulic continuity between the borehole and the site.</p>	No	No

Peak District Dales SAC

European Site name:	Peak District Dales SAC (UK0019859)	
Designation type: (SAC, SPA, Ramsar):	SAC	
Qualifying features:	<p>The Carboniferous Limestone massif of the Peak District is one of the most important in Britain, lying in latitude and altitude between the Mendips and the Craven area of Yorkshire. The limestone is cut by valleys, the 'dales', which contain a wide range of wildlife habitats, particularly woodland, scrub and grassland. This mosaic of habitats and the transitions between them are of exceptional interest for a wide range of characteristic, rare and uncommon flora and fauna.</p> <p>Annex I habitats that are a primary reason for selection of this site 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) 9180 <i>Tilio-Acerion</i> forests of slopes, screes and ravines</p> <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site 4030 European dry heaths 6130 Calaminarian grasslands of the <i>Violetalia calaminariae</i> 7230 Alkaline fens 8120 Calcareous and calcshist screes of the montane to alpine levels (<i>Thlaspietea rotundifolii</i>) 8210 Calcareous rocky slopes with chasmophytic vegetation</p> <p>Annex II species that are a primary reason for selection of this site 1092 White-clawed (or Atlantic stream) crayfish <i>Austropotamobius pallipes</i></p> <p>Annex II species present as a qualifying feature, but not a primary reason for site selection 1096 Brook lamprey <i>Lampetra planeri</i> 1163 Bullhead <i>Cottus gobio</i></p>	<p>Water Dependent?</p> <p>Yes</p>
Conservation objectives:	<p>Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;</p> <ul style="list-style-type: none"> • The extent and distribution of qualifying natural habitats and habitats of qualifying species • The structure and function (including typical species) of qualifying natural habitats • The structure and function of the habitats of qualifying species • The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely • The populations of qualifying species, and, • The distribution of qualifying species within the site. 	
Sensitivities of Qualifying Features:	<p>Potential sensitivities, threats and pressures across the habitats and species of the site are numerous. The below represents a summary of the high level issues. Further details are within the Site Conservation Objectives: Supplementary advice on conserving and restoring site features¹⁸.</p> <p>Defining and maintaining the appropriate hydrological regime is a key step in moving towards achieving the conservation objectives for the site and sustaining this feature. Changes in source, depth, duration, frequency, magnitude and timing of water supply can have significant implications for the assemblage of characteristic plants and animals present.</p> <p>Invasive or introduced non-native species can be a serious potential threat to the structure and function of these habitats, because they are able to exclude, damage or suppress the growth of their associated typical species, reduce structural diversity of the habitat and prevent the natural regeneration of characteristic site-native species. Once established, the measures to control such species may also impact negatively on the features of interest (e.g. use of broad spectrum pesticides).</p>	

¹⁸ European Site Conservation Objectives: Supplementary advice on conserving and restoring site features Peak District Dales Special Area of Conservation (SAC) Site Code: UK0019859. Natural England. 2019.

	<p>The habitat features are often preferentially grazed and may be vulnerable to significant overgrazing pressure associated with the management of the wider local landscape.</p> <p>The overall vulnerability of this particular SAC to climate change has been assessed by Natural England as being low taking into account the sensitivity, fragmentation, topography and management of its habitats/ supporting habitats. The SAC has been identified by Natural England as being in the top 10% of potential climate change refugia sites within England. These are areas which offer conditions for species to survive longer under extreme climate scenarios, and so the resilience of the SAC is of greater national significance.</p> <p>This habitat type is considered sensitive to changes in air quality. Exceedance of these critical values for air pollutants may modify the chemical status of its substrate, accelerating or damaging plant growth, altering its vegetation structure and composition and causing the loss of sensitive typical species associated with it.</p>
Overlapping or adjacent SSSIs:	Ballidon Dale SSSI, Coombs Dale SSI, Cressbrook Dale SSSI, Dove Valley and Biggin Dale SSSI, Hamps and Manifold Valleys SSSI, Lathkill Dale SSSI, Long Dale and Gratton Dale SSSI, Long Dale, Hartington SSSI, Matlock Woods SSSI, Monks Dale SSSI, The Wye Valley SSSI, Topley Pike and Deep Dale SSSI, Via Gellia Woodlands SSSI.
Site Improvement Plan (only threats and actions relevant to the Drought Plan):	<ol style="list-style-type: none"> 1. Water Pollution - Reduce phosphate inputs from Sewage Treatment Works; 2. Inappropriate water levels - Implementation of hydrological restoration solutions 3. Climate change - Review likely climate change impacts and identify adaptation actions 4. Air Pollution: impact of atmospheric nitrogen deposition - Control, reduce and ameliorate atmospheric nitrogen impacts

Option:	Screening assessment	LSE alone?	If no LSE alone: Residual low-level effect requiring incombination assessment?
Hulme Springs borehole	<p>Construction: There is no construction related to this option.</p> <p>Operation: There are considered to be no operational impacts.</p> <p>There is no direct hydraulic continuity between the borehole and the site.</p>	No	No

Severn Estuary/ Môr Hafren SAC

European Site name:	Severn Estuary/ Môr Hafren SAC (UK0013030)	
Designation type: (SAC, SPA, Ramsar):	SAC	
Qualifying features:	<p>The SAC is a part of the Severn Estuary European Marine Site (EMS). The Estuary includes a wide diversity of habitats including Sandbanks which are slightly covered by sea water all the time, Mudflats and sandflats not covered by sea water at low tide, Atlantic salt meadows, and Reefs, which are identified as Annex I habitat types in their own right. The intertidal zone of mudflats, sand banks, rocky platforms and saltmarsh is one of the largest and most important in Britain. The estuary has a diverse geological setting and a wide range of geo-morphological features, especially sediment deposits. It is important for the interpretation of coastline dynamics and land-forms, and also past changes, in sea level, sediment supply, climate and river flow. The estuary's overall interest depends on its large size, and on the processes and interrelationships between the intertidal and marine habitats and its fauna.</p> <p>Annex I habitats that are a primary reason for selection of this site 1130 Estuaries 1140 Mudflats and sandflats not covered by seawater at low tide 1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)</p> <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site 1110 Sandbanks which are slightly covered by sea water all the time 1170 Reefs</p> <p>Annex II species that are a primary reason for selection of this site 1095 Sea lamprey <i>Petromyzon marinus</i> 1099 River lamprey <i>Lampetra fluviatilis</i> 1103 Twaite shad <i>Alosa fallax</i></p> <p>Annex II species present as a qualifying feature, but not a primary reason for site selection Not Applicable</p>	<p>Water Dependent?</p> <p>Yes</p>
Conservation objectives:	<p>Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;</p> <ul style="list-style-type: none"> • The extent and distribution of qualifying natural habitats and habitats of qualifying species • The structure and function (including typical species) of qualifying natural habitats • The structure and function of the habitats of qualifying species • The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely • The populations of qualifying species, and, • The distribution of qualifying species within the site. 	
Sensitivities of Qualifying Features:	<p>Potential sensitivities, threats and pressures across the habitats and species of the site are numerous. The below represents a summary of the high level issues. Further details are within the Site Conservation Objectives¹⁹²⁰²¹.</p>	

¹⁹ European Site Conservation Objectives for Severn Estuary/ Môr Hafren Special Area of Conservation. Natural England. 2019.

²⁰ The Severn Estuary/ Môr Hafren European Marine Site. Natural England & the Countryside Council for Wales' advice given under Regulation 33(2)(a) of the Conservation (Natural Habitats, &c.) Regulations 1994, as amended. June 2009.

	Fish and Shellfish Aquaculture; professional fishing; fixed location fishing; leisure fishing; bait digging; taking / removal of fauna, general; taking / removal of flora, general; hunting, fishing or collecting activities not referred to above; sand and gravel extraction; urbanised areas, human habitation; industrial or commercial areas; discharges; port areas; energy transport; pipe lines; shipping; nautical sports; motorised vehicles; pollution; water pollution; trampling, overuse; landfill, land reclamation and drying out, general; polderisation; reclamation of land from sea, estuary or marsh; infilling of ditches, dykes, ponds, pools, marshes or pits; removal of sediments (mud), canalisation; flooding; modification of hydrographic functioning, general; modification of marine currents; management of water levels; dumping, depositing of dredged deposits; dykes, embankments, artificial beaches, general; sea defence or coast protection works; erosion; drying out / accumulation of organic material; eutrophication; acidification; invasion by a species; interspecific faunal relations; interspecific floral relations; genetic pollution.
Overlapping or adjacent SSSIs:	Upper Severn Estuary SSSI, Severn Estuary SSSI, Bridgewater Bay SSSI.
Site Improvement Plan (only threats and actions relevant to the Drought Plan):	<ol style="list-style-type: none"> 1. Water Pollution - Identify any existing issues and prevent/reduce decline in water and sediment quality (applying relevant measures to all relevant tributaries in England and Wales); 2. Invasive species - Assess the risks from, and control the spread of invasive non-native species 3. Climate change - Review likely climate change impacts and identify adaptation actions 4. Air Pollution: impact of atmospheric nitrogen deposition

Option:	Screening assessment	LSE alone?	If no LSE alone: Residual low-level effect requiring incombination assessment?
River Severn at the River Severn works – drought permit #1	<p>Construction: There is no construction related to this option.</p> <p>Operation: The abstraction licence at the River Severn Works is restricted when the River Severn is under River Regulation (when water is being released to support the river), and when the EA has implemented its own drought order on the River Severn (requiring a 5% reduction in abstraction licences on the river). The option would enable a 5% increase in abstraction licence (restoring the level of abstraction permitted before the EA drought order). This would restore the output of the River Severn Works to 192 MI/d. The Severn Estuary was assessed within the HRA of the River Severn Drought Scheme (RSDO) environmental assessment work in 2012. The report concluded that no significant effects are likely as a result of the River Severn Works drought plan proposals 'alone'.</p> <p>Modelling undertaken by the EA for the RSDO HRA²² did not indicate any significant in-combination effects on river flow or the Severn Estuary, if an abstraction cap of 300 MI/d is set for the CRT Gloucester and Sharpness canal abstraction when discharge drops below river 1200 MI/d at Deerhurst. However, given the complexity of the abstractions on the River Seven, and need for several drought permits/ orders to operate concurrently in an extreme drought event, updated hydrological modelling would be required to support the drought permits/ orders HRA's if this scenario were to occur, taking account of the preceding baseline conditions to fully assess whether adverse effects would arise. Sufficient time would be available to</p>	No	No

²¹ European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC) Fourth Report by the United Kingdom under Article 17 on the implementation of the Directive from January 2013 to December 2018 Conservation status assessment, accessed on 26.09.2021, for the habitats:
H1130 Estuaries. Accessed at [UK conservation status assessment for H1130 - Estuaries as part of the Fourth Report by the United Kingdom under Article 17 of the EU Habitats Directive \(jncc.gov.uk\)](#)
H1140 Mudflats and sandflats not covered by seawater at low tide (United Kingdom). Accessed at [UK conservation status assessment for H1140 - Mudflats and sandflats not covered by seawater at low tide as part of the Fourth Report by the United Kingdom under Article 17 of the EU Habitats Directive \(jncc.gov.uk\)](#)
H1130 Atlantic saltmeadows (*Glauco-Puccinellietalia maritima*) (United Kingdom). Accessed at [UK conservation status assessment for H1130 - Atlantic salt meadows \(Glauco-Puccinellietalia maritima\) as part of the Fourth Report by the United Kingdom under Article 17 of the EU Habitats Directive \(jncc.gov.uk\)](#)
H1110 Sandbanks which are slightly covered by sea water all the time (United Kingdom). Accessed at [UK conservation status assessment for H1110 - Sandbanks which are slightly covered by sea water all the time as part of the Fourth Report by the United Kingdom under Article 17 of the EU Habitats Directive \(jncc.gov.uk\)](#)
H1170 Reefs (United Kingdom). Accessed at [UK conservation status assessment for H1170 - Reefs as part of the Fourth Report by the United Kingdom under Article 17 of the EU Habitats Directive \(jncc.gov.uk\)](#)
64 European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC) Fourth Report by the United Kingdom under Article 17 on the implementation of the Directive from January 2013 to December 2018 Conservation status assessment, accessed on 26.09.2021, for the species:
S1095 Sea lamprey (*Petromyzon marinus*) (United Kingdom). Accessed at [UK conservation status assessment for S1095 - Sea lamprey \(Petromyzon marinus\) as part of the Fourth Report by the United Kingdom under Article 17 of the EU Habitats Directive \(jncc.gov.uk\)](#).
S1099 –River lamprey (*Lampetra fluviatilis*) (United Kingdom). Accessed at [UK conservation status assessment for S1099 - River lamprey \(Lampetra fluviatilis\) as part of the Fourth Report by the United Kingdom under Article 17 of the EU Habitats Directive \(jncc.gov.uk\)](#).
S1103 –Twaite shad (*Alosa fallax*) (United Kingdom). Accessed at [UK conservation status assessment for S1103 - Twaite shad \(Alosa fallax\) as part of the Fourth Report by the United Kingdom under Article 17 of the EU Habitats Directive \(jncc.gov.uk\)](#)

²² Environment Agency (2013) Habitats Regulations Assessment (River Severn Drought Order) Version 3 - December 2013. Accessed at LIT_9037_277624.pdf (publishing.service.gov.uk)

	<p>complete this work given the preceding drought actions to be taken, and triggers to be met to instigate the second drought order.</p> <p>The protection of the Severn Estuary would likewise ensure the protection of the River Wye SAC and its habitats and species.</p>		
<p>River Severn at the River Severn works – drought permit #2</p>	<p>Construction: There is no construction related to this option.</p> <p>Operation: SSW would consider applying for a drought order to increase the level of abstraction up to 216 MI/d. This would enable the conservation of bankside storage reservoir levels and allow full use of maximum treatment capacity at the River Severn Works during the critical drought period. It is also possible that the second option may be required during implementation of an EA drought order and this has been used to define the maximum environmental impact case.</p> <p>The Severn Estuary SAC and Ramsar site were assessed within the HRA of the River Severn Drought Scheme (RSDO) environmental assessment work in 2012. The report concluded that no significant effects are likely as a result of the River Severn Works drought plan proposals 'alone'.</p> <p>Modelling undertaken by the EA for the RSDO HRA did not indicate any significant in-combination effects on river flow or the Severn Estuary, if an abstraction cap of 300 MI/d is set for the CRT Gloucester and Sharpness canal abstraction when discharge drops below river 1200 MI/d at Deerhurst. However, given the complexity of the abstractions on the River Seven, and need for several drought permits/ orders to operate concurrently in an extreme drought event, updated hydrological modelling would be required to support the drought permits/ orders HRA's if this scenario were to occur, taking account of the preceding baseline conditions to fully assess whether adverse effects would arise. Sufficient time would be available to complete this work given the preceding drought actions to be taken, and triggers to be met to instigate the second drought order.</p> <p>The protection of the Severn Estuary would likewise ensure the protection of the River Wye SAC and its habitats and species.</p>	<p>No</p>	<p>No</p>

Special Protection Areas (SPAs) and Ramsar

Severn Estuary SPA and Ramsar

European Site name:	Severn Estuary SPA and Ramsar (UK9015022, UK11081)	
Designation type: (SAC, SPA, Ramsar):	SPA and Ramsar	
Qualifying features:	<p>The estuary's classic funnel shape, unique in Britain, is a factor causing the Severn to have the second-largest tidal range in the world (after the Bay of Fundy, Canada). This tidal regime results in plant and animal communities typical of the extreme physical conditions of liquid mud and tide swept sand and rock. The species-poor invertebrate community includes high densities of ragworms, lugworms and other invertebrates forming an important food source for passage and wintering waders. A further consequence of the large tidal range is the extensive intertidal zone, one of the largest in the UK, comprising mudflats, sand banks, shingle, and rocky platforms</p> <p>SPA The SPA qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive. Over winter; Bewick's Swan <i>Cygnus columbianus bewickii</i>, 280 individuals representing at least 4.0% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6).</p> <p>This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species: Over winter; Gadwall <i>Anas strepera</i>; Greater white-fronted geese <i>Anser albifrons albifrons</i>; Dunlin <i>Calidris alpina</i>; Common shelduck <i>Tadorna tadorna</i>; Common redshank <i>Tringa tetanus</i>.</p> <p>Assemblage qualification: A wetland of international importance. The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 Waterfowl Over winter, the area regularly supports 93,986 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: Gadwall <i>Anas strepera</i>, Shelduck <i>Tadorna tadorna</i>, Pintail <i>Anas acuta</i>, Dunlin <i>Calidris alpina alpina</i>, Curlew <i>Numenius arquata</i>, Redshank <i>Tringa totanus</i>, Bewick's Swan <i>Cygnus columbianus bewickii</i>, Wigeon <i>Anas penelope</i>, Lapwing <i>Vanellus vanellus</i>, Teal <i>Anas crecca</i>, Mallard <i>Anas platyrhynchos</i>, Shoveler <i>Anas clypeata</i>, Pochard <i>Aythya ferina</i>, Tufted Duck <i>Aythya fuligula</i>, Grey Plover <i>Pluvialis squatarola</i>, White-fronted Goose <i>Anser albifrons albifrons</i>, Whimbrel <i>Numenius phaeopus</i>.</p> <p>Ramsar Ramsar criterion 1: Due to immense tidal range (second-largest in world), this affects both the physical environment and biological communities. Habitats Directive Annex I features present on the pSAC include: H1110 Sandbanks which are slightly covered by sea water all the time H1130 Estuaries H1140 Mudflats and sandflats not covered by seawater at low tide H1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)</p> <p>Ramsar criterion 3: Due to unusual estuarine communities, reduced diversity and high productivity.</p> <p>Ramsar criterion 4: This site is important for the run of migratory fish between sea and river via estuary. Species include Salmon <i>Salmo salar</i>, sea trout <i>S. trutta</i>, sea lamprey <i>Petromyzon marinus</i>, river lamprey <i>Lampetra fluviatilis</i>, allis shad <i>Alosa alosa</i>, twaite shad <i>A. fallax</i>, and eel <i>Anguilla anguilla</i>. It is also of particular importance for migratory birds during spring and autumn.</p> <p>Ramsar criterion 8: The fish of the whole estuarine and river system is one of the most diverse in Britain, with over 110 species recorded. Salmon <i>Salmo salar</i>, sea trout <i>S. trutta</i>, sea lamprey <i>Petromyzon marinus</i>, river lamprey <i>Lampetra fluviatilis</i>, allis shad <i>Alosa alosa</i>, twaite shad <i>A. fallax</i>, and eel <i>Anguilla Anguilla</i> use the Severn Estuary as a key migration route to their spawning grounds in the many tributaries that flow into the estuary. The site is important as a feeding and nursery ground for many fish species particularly allis shad <i>Alosa alosa</i> and twaite shad <i>A. fallax</i> which feed on mysid shrimps in the salt wedge.</p>	<p>Water Dependent? Yes</p>

	<p>Ramsar criterion 5: Assemblages of international importance: Species with peak counts in winter: 70919 waterfowl (5 year peak mean 1998/99-2002/2003).</p> <p>Ramsar criterion 6 – species/ populations occurring at levels of international importance: Qualifying Species/populations (as identified at designation): Species with peak counts in winter: Tundra swan , <i>Cygnus columbianus bewickii</i>, NW Europe 229 individuals, representing an average of 2.8% of the GB population (5 year peak mean 1998/9- 2002/3) Greater white-fronted goose, <i>Anser albifrons albifrons</i>, NW Europe 2076 individuals, representing an average of 35.8% of the GB population (5 year peak mean for 1996/7-2000/01) Common shelduck, <i>Tadorna tadorna</i>, NW Europe 3223 individuals, representing an average of 1% of the population (5 year peak mean 1998/9- 2002/3) Gadwall, <i>Anas strepera strepera</i>, NW Europe 241 individuals, representing an average of 1.4% of the GB population (5 year peak mean 1998/9-2002/3) Dunlin, <i>Calidris alpina alpina</i>, W Siberia/W Europe 25082 individuals, representing an average of 1.8% of the population (5 year peak mean 1998/9-2002/3) Common redshank, <i>Tringa totanus tetanus</i> 2616 individuals, representing an average of 1% of the population (5 year peak mean 1998/9- 2002/3) Species/ populations identified subsequent to designation for possible future consideration under criterion 6: Species regularly supported during the breeding season: Lesser black-backed gull, <i>Larus fuscus graellsii</i>, W Europe/Mediterranean/W Africa 4167 apparently occupied nests, representing an average of 2.8% of the breeding population (Seabird 2000 Census) Species with peak counts in spring/ autumn: Ringed plover, <i>Charadrius hiaticula</i>, Europe/Northwest Africa 740 individuals, representing an average of 1% of the population (5 year peak mean 1998/9-2002/3) Species with peak counts in winter: Eurasian teal, <i>Anas crecca</i>, NW Europe 4456 individuals, representing an average of 1.1% of the population (5 year peak mean 1998/9-2002/3) Northern pintail, <i>Anas acuta</i>, NW Europe 756 individuals, representing an average of 1.2% of the population (5 year peak mean 1998/9-2002/3).</p>	
<p>Conservation objectives:</p>	<p>Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;</p> <ul style="list-style-type: none"> • The extent and distribution of the habitats of the qualifying features • The structure and function of the habitats of the qualifying features • The supporting processes on which the habitats of the qualifying features rely • The population of each of the qualifying features, and • The distribution of the qualifying features within the site 	
<p>Current conservation status:</p>	<p>051 <i>Anas strepera</i>; Gadwall: (type: wintering, size: minimum 282; maximum 282 (0.9% of the population 5 year peak mean 1991/92 – 1995/96), unit: individuals, data quality: good, population: 2 – 15%, isolation: population not isolated within extended distribution range). 394 <i>Anser albifrons albifrons</i>; Greater white-fronted geese (type: wintering, size: minimum 2664; maximum 2664 (0.4% of the population 5 year peak mean 1991/92 – 1995/96), unit: individuals, data quality: good, population: 15 -100%, isolation: population not isolated, but on margins of area of distribution). 672 <i>Calidris alpina alpina</i>; Dunlin (type: wintering, size: minimum 44624; maximum 44624 (3.3% of the population 5 year peak mean 1991/92 – 1995/96), unit: individuals, data quality: good, population: 2 - 15%, isolation: population not isolated within extended distribution range). 037 <i>Cygnus columbianus bewickii</i>; Bewick’s swan (type: wintering, size: minimum 280; maximum 280 (3.9% of the population 5 year peak mean 1991/92 – 1995/96), unit: individuals, data quality: good, population: 2 - 15%, isolation: population not isolated within extended distribution range). 048 <i>Tadorna tadorna</i>; Common shelduck (type: wintering, size: minimum 3330; maximum 3330 (1.1% of the population 5 year peak mean 1991/92 – 1995/96), unit: individuals, data quality: good, population: 2 - 15%, isolation: population not isolated within extended distribution range). 162 <i>Tringa tetanus</i>; Common redshank (type: wintering, size: minimum 2330; maximum 2330 (1.3% of the population 5 year peak mean 1991/92 – 1995/96), unit: individuals, data quality: good, population: 2 - 15%, isolation: population not isolated within extended distribution range). WATR Waterfowl assemblage (size: minimum 84317; maximum 84317. Unit: individuals; motivation: International conventions).</p>	
<p>Overlapping or adjacent SSSIs:</p>	<p>Upper Severn Estuary SSSI, Severn Estuary SSSI, Bridgwater Bay SSSI.</p>	
<p>Site Improvement Plan (only threats and actions relevant to the Drought Plan):</p>	<ol style="list-style-type: none"> 1. Water Pollution - – Identify any existing issues and prevent/reduce decline in water and sediment quality (applying relevant measures to all relevant tributaries in England and Wales). 2. Air Pollution: impact of atmospheric nitrogen deposition - Develop a Site Nitrogen Action Plan 	

Option:	Screening assessment	LSE alone?	If no LSE alone: Residual low-level effect requiring incombination assessment?
<p>River Severn at the River Severn works – drought permit #1</p>	<p>Construction: There is no construction related to this option.</p> <p>Operation: The abstraction licence at the River Severn Works is restricted when the River Severn is under River Regulation (when water is being released to support the river), and when the EA has implemented its own drought order on the River Severn (requiring a 5% reduction in abstraction licences on the river). The option would enable a 5% increase in abstraction licence (restoring the level of abstraction permitted before the EA drought order). This would restore the output of the River Severn Works to 192 MI/d. The Severn Estuary was assessed within the HRA of the River Severn Drought Scheme (RSDO) environmental assessment work in 2012. The report concluded that no significant effects are likely as a result of the River Severn Works drought plan proposals 'alone'.</p> <p>Modelling undertaken by the EA for the RSDO HRA did not indicate any significant in-combination effects on river flow or the Severn Estuary, if an abstraction cap of 300 MI/d is set for the CRT Gloucester and Sharpness canal abstraction when discharge drops below river 1200 MI/d at Deerhurst. However, given the complexity of the abstractions on the River Seven, and need for several drought permits/ orders to operate concurrently in an extreme drought event, updated hydrological modelling would be required to support the drought permits/ orders HRA's if this scenario were to occur, taking account of the preceding baseline conditions to fully assess whether adverse effects would arise. Sufficient time would be available to complete this work given the preceding drought actions to be taken, and triggers to be met to instigate the second drought order.</p>	<p>No</p>	<p>No</p>
<p>River Severn at the River Severn works – drought permit #2</p>	<p>Construction: There is no construction related to this option.</p> <p>Operation: SSW would consider applying for a drought order to increase the level of abstraction up to 216 MI/d. This would enable the conservation of bankside storage reservoir levels and allow full use of maximum treatment capacity at the River Severn Works during the critical drought period. It is also possible that the second option may be required during implementation of an EA drought order and this has been used to define the maximum environmental impact case.</p> <p>The Severn Estuary SAC and Ramsar site were assessed within the HRA of the River Severn Drought Scheme (RSDO) environmental assessment work in 2012. The report concluded that no significant effects are likely as a result of the River Severn Works drought plan proposals 'alone'.</p> <p>Modelling undertaken by the EA for the RSDO HRA did not indicate any significant in-combination effects on river flow or the Severn Estuary, if an abstraction cap of 300 MI/d is set for the CRT Gloucester and Sharpness canal abstraction when discharge drops below river 1200 MI/d at Deerhurst. However, given the complexity of the abstractions on the River Seven, and need for several drought permits/ orders to operate concurrently in an extreme drought event, updated hydrological modelling would be required to support the drought permits/ orders HRA's if this scenario were to occur, taking account of the preceding baseline conditions to fully assess whether adverse effects would arise. Sufficient time would be available to complete this work given the preceding drought actions to be taken, and triggers to be met to instigate the second drought order.</p>	<p>No</p>	<p>No</p>