Technical Note

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1. Introduction

1.1. Background and Context

This Habitat Regulation Assessment (HRA) Technical Note reports on the Stage 1 Screening Assessment (Test of Likely Significance) undertaken by Water Resources South East (WRSE)[1] for options being considered by SES Water, as part of the environmental assessment work to support the development of the WRSE Regional Resilience Plan. SES Water are one of the six water companies in the south east of England region within the WRSE alliance. The HRA assessments presented here have been undertaken by WRSE and results considered in the undertaking of the Strategic Environmental Assessment (SEA) of SES Water's Water Resources Management Plan (WRMP24). No review of the HRA screening assessments have been undertaken and they are produced here only in summary.

A suite of Drought Permits feature in SES Water's WRMP24, though it is to be noted that these have been assessed through the respective SES Water Drought Plan SEA[2]. Drought Permit options are accompanied by Environmental Assessment Reports (EARs) which are responsible for setting out and addressing material environmental issues arising from operation of Drought Permits, including impacts arising on European Sites. A summary of the EAR findings in respect of European sites is provided in this TN for completeness.

1.2. SES Water's WRMP24

There is considerable uncertainty to planning water supply many years in advance as it requires planning for different scenarios using various supply and demand projections. Future challenges, including growth in population, climate change and levels of environmental ambition have been used to ensure future challenges and uncertainties facing the south east region over the next 50 years are identified. At all times, there is a need to ensure that the company can achieve a secure supply of water for the period 2025 – 2075. Where a risk of deficits in supply are identified, a series of 'demand side' (measures that reduce demand for water) and 'supply side' (measures that increase supply) Options are considered and incorporated into modelling, with the goal of identifying a preferred set of Options to meet the requirements and objectives of the Plan.

It was the aim of SES Water to develop a plan that represents 'best value'. A Best Value Plan (BVP) is defined as one that considers factors alongside economic cost and seeks to achieve an outcome that increases the overall benefit to customers, the wider environment and overall society. WRSE were tasked with developing the decision-making approach and tool (the investment model) that would be used by all companies in WRSE to select their preferred plan.

In addition to developing the BVP, and as required by the revised Water Resources Planning Guidelines (WRPG), further optimisation runs were also automatically shortlisted by WRSE, to benchmark and appraise the BVP against. WRSE developed two reasonable alternatives for each water company:

Least Cost Plan (LCP): The model was run in adaptive mode, solving all the future branches and design drought conditions simultaneously, but optimising to minimise cost only (i.e., no other objectives are optimised). The outputs from various runs of the least cost plan helped to identify the options that are selected most frequently, and the potential tipping points along the adaptive pathways. This helped to inform decision-making around best value.

Best Environmental and Societal Plan (BESP): This programme is not optimised on cost, but the programme that SES Water consider delivers best overall environment and society value outcomes. This considers overall performance across the SEA, Natural Capital and Biodiversity Net Gain metrics, and through engagement with stakeholders.

Effects on European sites have been considered for all applicable supply options selected in SES Waters WRMP24 preferred plan (their BVP) and their alternative plans (BESP or LCP). For further information on the BVP Framework and the selection of the BVP and the two alternative plans please refer to Chapter 7 of the WRMP24.

[1] WRSE (2022) WRSE Draft Regional SEA Environmental Report – Appendix G. September 2022
[2] https://seswater.co.uk/about-us/publications/our-drought-plan

1.3. Habitats Regulations Assessment

1.3.1. Legislation

HRA is required by Regulation 63 of the Conservation (Natural Habitats, and species) Regulations 2017 (as amended)[3], where a project or plan is likely to have a significant effect on a European site or European offshore marine site (either alone or in combination with other plans and projects) and is not directly connected with or necessary to the management of that site.

European sites include Special Areas of Conservation (SAC) and Special Protection Areas (SPA). HRA is also required, as a matter of UK Government policy[4], for potential SPAs (pSPA), possible SACs (pSAC) and listed and proposed wetlands of international importance (Ramsar sites and proposed Ramsar sites), and sites identified, or required, as compensatory measures for adverse effects on habitats sites, pSPA, pSAC and listed or proposed Ramsar sites, for the purposes of considering plans and projects which may affect them. Hereafter, all of the above designated nature conservation sites are referred to as 'European Sites'.

The stages of HRA process are:

- Stage 1 - Screening: To test whether a Scheme either alone or in combination with other plans and projects is likely to have a significant effect on a European Site;
- Stage 2 - Appropriate Assessment: To determine whether, in view of a European Site's conservation objectives, the Scheme (either alone or in combination with other plans and projects) would have an adverse effect on the integrity of the site with respect to the site structure, function and conservation objectives. If adverse impacts are anticipated, potential mitigation measures to alleviate impacts should be proposed and assessed;
- Stage 3 - Assessment of alternative solutions: Where a Scheme is assessed as having an adverse impact (or risk of this) on the integrity of a European Site, there should be an examination of alternatives (e.g., alternative locations and designs of development); and,
- Stage 4 – Imperative Reasons of Overriding Public Interest (IROPI): Assessment where no alternative solutions have been identified and where adverse impacts remain. In exceptional circumstance (e.g., where there are imperative reasons of overriding public interest), compensatory measures can be put in place to offset negative impacts.

A number of European Sites fall within the SES Water WRMP24 area, hereafter referred to as the 'Plan Area'. Under the Habitats Regulations, Competent Authorities, i.e. any minister, government department, statutory undertaker, public body, or person holding public office, have a general duty, in the exercise of any of their functions to have regard to the Habitats Regulations. Furthermore, according to UKWIR 2021 Guidance[5], a water company is the Competent Authority with respect to HRA. The Water Resource Planning Guideline (WRPG) for England and Wales[6] stipulates that Water Resources Management Plans (WRMPs) should be subject to a HRA as set out in the Habitats Regulations. Therefore, SES Water has a statutory duty to prepare a WRMP and is the Competent Authority for the HRA in respect of it.

This HRA report summarises the Stage 1 Screening undertaken by WRSE on the SES Water options selected by SES Water for inclusion in their WRMP24. Those options that remain screened in following review are to be taken forward to Stage 2, Appropriate Assessment (AA).

HRA is based on application of the precautionary principle; where Likely Significant Effect (LSE) cannot be ruled out or uncertainty remains, an impact is assumed, triggering the requirement for AA of that option.

1.4. Methodology

This methodology section sets out the approach taken to the HRA.

[3] Amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, which means that SACs and SPAs in the UK no longer form part of the EU's Natura 2000 ecological network and now form part of the UK's national network of European Sites

[4] Ministry of Housing, Communities and Local Government (2021) National Planning Policy Framework (NPPF). Paragraph 181

[5] UK Water Industry Research (2021) Environmental Assessment Guidance for Water Resources Management Plans and Drought Plans (21/WR/02/15

[6] Water Resource Planning Guidelines, 2021, Environment Agency, Ofwat, Natural Resources Wales and Supplementary Planning Guidance 'Environmental and Society in Decision-Making'

1.4.1. Stage 1–Screening

HRA screening determines whether there will be any LSEs on any European Site as a result of implementation of identified options 'alone' or 'in combination' with other plans or projects.

A critical part of the HRA Screening process is determining whether or not the proposals are likely to have a significant effect on European Sites and, therefore, if they will require an Appropriate Assessment. The concept of 'likely significant effect' as embodied in Article 6 (3) of the Habitats Directive and Regulation 61 (1) of the Habitats Regulations is central to their operation. Its interpretation is well established in law and guidance and embraces the precautionary principle.

The European Court Waddenzee judgement[7] provides clarification regarding the term 'likely'. It concludes that 'any plan or project not directly connected with or necessary to the management of the site is to be subject to an appropriate assessment of its implications for the site in view of the site's conservation objectives if it cannot be excluded, on the basis of objective information, that it will have a significant effect on that site, either individually or in combination with other plans or projects.'

Clarification has also been provided through case law on the meaning of 'likely' in relation to Bagmoor Wind Ltd v The Scottish Ministers[8]. 'The word 'likely' in the regulation is not to be construed as an expression of probability, in a legal sense, but as a description of the existence of a risk (or possibility)'. Consequently, if the possibility of a significant effect cannot be excluded based on objective information, an Appropriate Assessment will be required.

The European Court Waddenzee judgement also provides further clarification regarding the term 'significant': "where a plan or project not directly connected with or necessary to the management of a site is likely to undermine the site's conservation objectives, it must be considered likely to have a significant effect on that site. The assessment of that risk must be made in the light inter alia of the characteristics and specific environmental conditions of the site concerned by such a plan or project".

The Bagmoor Wind case also provides guidance on the term 'objective.' It states: "Objective, in this context, means information based on clear verifiable fact rather than subjective opinion". The Habitats Regulations Handbook2 states: "It will not normally be sufficient for an applicant merely to assert that the plan or project will not have an adverse effect on a site, nor will it be appropriate for a competent authority to rely on reassurances based on supposition or speculation. On the other hand, there should be credible evidence to show that there is a real rather than a hypothetical risk of effects that could undermine the site's conservation objectives. Any serious possibility of a risk that the conservation objectives could be undermined should trigger an 'appropriate assessment".

The test for likelihood of significant effects requires that consideration is given to potential causes and potential effects (i.e. any potential impact pathways). To do this, information on the Proposed Development is needed to identify the potential causes of effects, and information on the European Site is needed to identify any potential implications related to these effects. In the absence of a potential impact pathway, it can be concluded that no LSE would arise. Relevant aspects (effects) of the Proposed Development have been checked against all features of the relevant European Sites (i.e. screened) to determine whether an LSE may arise.

The judgement as to whether a significant effect is likely needs to be based on the best readily available information. Sources of information may include evidence from projects where similar operations have affected sites with similar qualifying features and conservation objectives and the judgement of relevant specialists that an effect is likely, as well as survey data collected to date for a particular project. In line with the precautionary principle, where there is uncertainty, and/or information is lacking in relation to the capacity of the effect to undermine the site's conservation objectives, it must be assumed that there will be an effect, unless further information can be made available to eliminate any areas of doubt.

The implication of the Court of Justice of the European Union (CJEU) judgement referred to as People Over Wind (Peter Sweetman v Coillte Teoranta, Case C-323/17) is that competent authorities cannot take account of any "measures that are intended to avoid or reduce the harmful effects of the envisaged project on the site concerned", when considering at the HRA screening stage whether the plan or project is likely to have an adverse effect on a European Site. The effect of this is that the screening stage must be undertaken on a precautionary basis with no regard to any proposed additional avoidance or reduction measures.

[7] Case C –127/02 Waddenzee, reference for a preliminary ruling from the Raad van State: Landelijke Vereniging tot Behoud van de Waddenzee, Nederlandse Vereniging tot Bescherming van Vogels v Staatssecretaris van Landbouw, Natuurbeheer en Visserij, 7th September 2004

[8] Bagmoor Wind Limited v The Scottish Ministers, Court of Sessions [2012] CSIH 93

It is now accepted best practice to undertake a targeted 'source-pathway-receptor' approach to identifying European Sites for screening. This allows for the movement of mobile/migratory species, such as birds, fish and, if necessary, marine mammals, and their potential to interact with infrastructure and/or individual sites associated with options to be taken into account.

Stage 1 Screening has been undertaken by WRSE and results provided for the SES Water preferred options.

1.4.2. Stage 2–Appropriate Assessment

Regulations 63(1) of the Habitats Regulations require that the competent authority "must make an Appropriate Assessment of the implications of the plan or project for that site in view of that site's conservation objectives". Therefore, the AA considers the potentially damaging impacts of the plan or project, the potential effects on the European Site features and whether or not this affects the achievement of its conservation objectives.

The overall objective of the assessment is to determine if there will be an adverse effect on the integrity of the European Site. Site specific information such as the Supplementary Advice on Conservation Objectives will be necessary in making this assessment. Other site information such as condition status may also be required.

The specific tasks to be undertaken during AA are outlined below and include:

- Step 1: Agree the scope of the AA;
- Step 2: Information gathering;
- Step 3: Determining adverse effects on site integrity;
- Step 4: In-combination assessment.

1.4.2.1. Stage 2: Step 1 – Agree the scope of the AA

According to UKWIR Guidance, it is important at this stage to scope the AA with the relevant SNCO, which in this case would be Natural England. The HRA Screening Report completed at Stage 1 should be used to start this statutory consultation, which will be key to the development of WRMP24.
Consultation with the relevant SNCO will provide an opportunity for confirming the Screening conclusions, agreeing the AA methodology, agreeing the evidence base for the assessment and discussing the potential mitigation measures.
It is a statutory requirement to consult the relevant SNCO with regard to the findings of the AA, and engagement beforehand can be beneficial for this process.

1.4.2.2. Stage 2: Step 2 – Information gathering

AA is a more detailed assessment and is likely to require more information in order to establish whether or not there will be adverse effects on the integrity of any given European Site. Where information is available for an option, this should be used to inform the assessment. This may come from a number of other sources, but in the case of a plan the assessment normally relies on existing data or desk-based sources, such as modelling. Mitigation measures can also be taken into account at this stage in determining the potential harm caused to qualifying features of European Sites. Appropriate mitigation to remove adverse effects should now be incorporated into the plan options where relevant. Any proposed mitigation needs to be deliverable and have a high degree of certainty of effect. For the plan to be adopted, mitigation must enable a conclusion of 'no adverse effect on site integrity'.

1.4.2.3. Stage 2: Step 3 – Determining adverse effects on site integrity

The assessment of adverse effects should focus on and be limited to the European Site's conservation objectives and can only be assessed to the extent possible on the basis of the precision of the plan.
Assessment of adverse effects will only be undertaken on the European Site qualifying features that could not be screened out at Stage 1. The assessment will consider the potential for harm to qualifying features based on information available about the plan and the mitigation presented with reference to the Supplementary Advice on Conservation Objectives. A conclusion will then be drawn as to whether or not there will be an adverse effect on site integrity.
The integrity of a site is defined as the coherence of the site's ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/ or the populations of the species for which the site is or will be designated.

It must be noted that, with reference to caselaw (see Section 1.4.2.6), an AA of a plan does not have to provide a conclusive answer to all the questions legitimately raised about the potential for adverse effects on the integrity of the European Site.

1.4.2.4. Mitigation Measures

The AA should consider potential mitigation measures. Mitigation can be incorporated into a plan through changes to the text to include a commitment ensuring that any arising development is subject to HRA, where necessary in accordance with the Habitats Regulations.
Additionally, it may include general best practice measures required to minimise or eliminate impacts. To be taken into account at plan stage, the mitigation must be appropriate, feasible and offer some certainty of success.
Measures identified as feasible during Programme Appraisal can now be brought into the assessment.

1.4.2.5. Stage 2: Step 4 – Assessing in-combination effects

The in-combination assessment process, as outlined above, will be revisited at Stage 2 to ascertain whether any options within the WRMP24 could have adverse effects on site integrity in-combination. Much of the data collated at Stage 1 can be re-used and tailored to the Stage 2 in-combination assessment. It is now also possible to consider mitigation measures in determining whether or not the plan and other projects and plans could have in-combination adverse effects on site integrity. This needs to be undertaken where there is potential for residual effects.

1.4.2.6. Guidance and Caselaw

This HRA with respect to SES Water's WRMP24 has been produced in accordance with the following guidance and caselaw:

- UK Water Industry Research (2021) Environmental Assessment Guidance for Water Resources Management Plans and Drought Plans (21/WR/02/15);
- Tyldesley, D., and Chapman, C., (2013) The Habitats Regulations Assessment Handbook, August 2022 edition UK: DTA Publications Limited;
- Court of Justice for the European Union's ruling on People Over Wind and Sweetman vs Coillte Teoranta, Case C-323/17;
- Waddenzee case (European Court of Justice C-127/02).

1.4.2.7. Legislative Change

The Environment Act 2021 allows for a review of the Habitats Regulations; therefore, there is scope for the HRA process to change during the lifetime of WRMP24 assessment and delivery period. It is proposed to continue following best practice approaches with regard to HRA until such a time that the approach changes. The potential for change will be reviewed at the start of each level of HRA assessment. Assessment of impacts on European Sites will not be removed entirely, but may be altered, and changes in how the WRMP24 is assessed may also be necessary.

1.4.2.8. Limitations

It must be noted that only the options highlighted by WRSE as requiring AA have had their screening assessments reviewed. The decision-making process undertaken to reach this point is provided in the WRSE Regional Plan Habitats Regulations Assessment Stage 1 Screening Report and has not been subject to scrutiny.

2. Options Assessed

Options presented in this report fall under two categories of HRA assessment. Those options assessed under WRSE and those captured through preparation of Environmental Assessment Reports that support Drought Permits. Demand management options have been excluded from this HRA TN as they are not location specific. Those that feature in the WRMP24 as continuation of supply options are considered baseline and also excluded from the assessment. Please refer to the WRMP24 for a full list of options featuring in SES Water's preferred plan.

2.1.1. Options assessed through Water Resources South East

The following options were assessed by WRSE and are included in at least one of the Preferred Plan (BVP), LCP and/or BESP alternatives.

Table 1: Options assessed through Water Resources South East

SES Water Option Name	WRSE Option ID	Scheme Description	Plan Featured	Year Utilised
Outwood Lane groundwater (2.7Ml/d)	SES_SES_HI-GRW_RE2_ALL_r22	This scheme seeks an increase in daily licence from 3 Ml/d to 8 Ml/d and requires an equivalent increase in pump capacity. The hydraulic capacity of the source has been proved during previous test pumping. The increase in PDO associated with the scheme would be 5 Ml/d. Potential for an ADO scheme has been considered by comparing the Woodmansterne group daily average licence limit with abs traction returns for the group from 2010-2016. The group licence offers an average headroom of 3.4 Ml/d if the borehole can be made to yield it.	LCP BESP BVP	2049/50 2050/51 2048/49
Secombe Centre UV (2.1Ml/d)	SES_SES_HI-LRE_WT2_ALL_r26	This scheme provides UV treatment for the Secombe Centre groundwater source which is currently out of supply due to bacti detections on the raw water. Due to the limited footprint available at the Secombe Centre site, the UV treatment plant would be located at Cheam WTW on the 'East Main' which feeds water from Hackbridge, Goatbridge, Woodcote, Oaks, Langley Park, Sutton and Sutton Court Rd boreholes as well as Secombe Centre.	LCP BESP BVP	2050/51 2050/51 2054/55
Raising Bough Beech reservoir (11.5Ml/d)	SES_SES_HI-ROC_RE2_ALL_r1	Raising the Bough Beech reservoir embankment would increase the volume of stored water, which would provide an increase in the average yield from the reservoir. This option has been included to demonstrate the costs and likely increases in average yield from such a scheme. Based on available drawings of the earth dam alignment, a 3m raising of the embankment would appear to be feasible. It is likely that some realignment of the embankment locally to the small housing development on the north side of the embankment would be required. A detailed study would be necessary to confirm the viability of this scheme. A 3m raising of the embankment would increase the storage volume of the reservoir by approximately 3,600Ml. The Aquator model of the Bough Beech reservoir system was used to estimate the additional average yield created by the dam raising. It is estimated that the scheme would provide an additional annual average yield of 5.5Ml/d, but no increase in peak output which is constrained by the WTW capacity.	LCP BESP BVP	2050/51 2052/53 -
Duckpit Wood (1.4Ml/d)	SES_SES_HI-GRW_RE1_ALL_r23	Scheme involves the construction of a new Lower Greensand borehole to replace Duckpit Wood and Paines Hill spring licences. It is contingent on neither the Duckpit Wood nor Pains Hill Spring treatment options being implemented. The anticipated increase in ADO is 1.37Ml/d and in PDO is 2.14 Ml/d. Option is mutually exclusive with R24. If R6 is implemented as well as R23, R6 requires its own 3.4Ml/d independent licence.	LCP BESP BVP	2067/68 2068/69 -
Water Lane borehole	SES_SES_HI-GRW_RE2_ALL_r7	Scheme seeks to increase ADO and PDO by increasing pump capacity and lowering pump	LCP	2050/51

SES Water Option Name	WRSE Option ID	Scheme Description	Plan Featured	Year Utilised
enhancement (2.2Ml/d)		cut-out at Water Lane groundwater source. The scheme aims to remove water quality constraint increasing ADO and PDO to potential yield of the borehole.	BESP BVP	2054/55 2061/62

2.2. Options assessed through Environmental Assessment Reports and Drought Plan SEA

In the event of a drought, SES Water will need to implement a range of management measures to ensure the continued provision of essential water supplies to all of its customers. The SES Water Drought Plan sets out the range of measures that the company will consider implementing in managing drought conditions, taking account of statutory legislation and regulatory requirements. These measures include a number of potential drought permits that SES Water may apply for to enable additional water to be abstracted from the water environment. Such applications are made in accordance with the Water Resources Act 1991, as amended by the Environment Act 1995, the Water Act 2003 and the Water Act 2014. Included also are the Drought Permit options which have been separately assessed through their respective Environmental Assessment Reports.

Water companies are required to prepare Environmental Assessment Reports (EARs) to accompany an application for a drought permit. A pre-prepared “shelf copy” of the EAR should be developed outside of a drought event so that any material environmental issues can be identified and addressed in advance of any application during a drought event.

The following Drought Permits are included in SES Waters Drought Plan and WRMP24 and are accompanied by EARs.

Table 2: Options assessed through Environmental Assessment Reports

SES Water Option Name	WRSE Option ID	Scheme Description	Plan Featured	Year Selected
Hackbridge drought permit	SES_SES_RE-DRP_REP_ALL_hackbridge-dp	It is proposed that the drought option decouples abstraction from the volume recharged and allows abstraction to be maximised (19Ml/Dd) irrespective of the volume recharged in the preceding winter. The permit is anticipated to bring about a 4Ml/d benefit. The Hackbridge Group licence comprises three sources in the confined Chalk: Hackbridge (two operational boreholes), Goat Bridge (one operational borehole) and Bishopsford Road. The option also considers the operation of an augmentation scheme (Carshalton Ponds/River) whereby the outflow from Carshalton Ponds has to be maintained at greater than 4.5Ml/d before abstraction can take place at Hackbridge and Goat Bridge boreholes. This operates by drawing water from the River Wandle at Goat Bridge and pumping it back up to Carshalton Ponds. The Drought Permit could potentially start at any time of the year, although the implementation of it is most likely to begin in during typical hydrological recession months (April to September).	LCP BESP BVP	2041/42 2041/42 2041/42
Kenley and Purley drought permit	SES_SES_RE-DRP_REP_ALL_ken-pur-dp	Kenley and Purley are two existing Chalk groundwater sources located in their namesake suburban areas in the London Borough of Croydon. The purpose of the Drought Permit is to allow for increased abstraction from Kenley and Purley. A 2.1Ml/d increase over an anticipated six month permit duration is noted in the Drought Permit EAR, with a proposed drought permit daily abstraction of 24.9Ml/d. The drought permit could potentially start at any time of year, although the implementation of it is most likely to	LCP BESP BVP	2041/42 2041/42 2041/42

SES Water Option Name	WRSE Option ID	Scheme Description	Plan Featured	Year Selected
		begin during typical hydrological recession months (April to September).		
Outwood Lane drought permit	SES_SES_RE-DRP_REP_ALL_outwood-dp	The purpose of this drought permit is to allow for increased abstraction at Outwood Lane. It is proposed that the current daily licence limit is increased from 3.02 to 5 Ml/d, equivalent to the Outwood Lane pump capacity. The permit also allows for a proportional increase in the Woodmansterne group annual licence limit to avoid output from the other sources in the group from being curtailed. This drought option would therefore be to increase both the annual licence at Outwood Lane and the Woodmansterne Group to allow an additional 2 Ml/d pumping from Outwood Lane for a maximum 6-month duration. The drought permit could potentially start at any time of the year, although the implementation of it is most likely to begin in during typical hydrological recession months (April to September). Should indicators of future water resource availability within the SES Water supply area return to sufficient levels to provide confidence that water supply can be maintained by normal licensed abstraction, the drought permit would be suspended.	LCP BESP BVP	2041/42 2041/42 2041/42
River Eden May drought permit	SES_SES_RE-DRP_REP_ALL_river-eden-maydp	Bough Beech reservoir is refilled primarily via an abstraction from the River Eden which normally operates during the autumn/winter. A drought permit to enable the winter abstraction from the River Eden to continue for an additional period of time; historically this has been into May, so this permit is often termed the May drought permit. The benefit of the proposed drought permit abstraction would be up to 272.2Ml/d of refill volume to the reservoir during May subject to a Minimum Residual Flow (MRF) in the River Eden. A MRF of 22Ml/d would apply and the annual abstraction limit of 29,000Ml/d would apply (it is assumed that the cap would extend from the preceding September through to the end of May). No construction would be required in order to facilitate the increased abstraction associated with the drought permit. Due to operational practice and infrastructure constraints, the abstraction would cease well before natural flows in the river reduce to 22Ml/d and when flows are recovering would not start until flows are much higher than 22Ml/d.	LCP BESP BVP	2041/42 2041/42 2041/42
River Eden Summer drought permit	SES_SES_RE-DRP_REP_ALL_river-eden-summerdp	Bough Beech reservoir is refilled primarily via an abstraction from the River Eden which normally operates during the autumn/winter. A drought permit to enable summer abstraction from the River Eden (after any May drought permit has ceased) to permit abstraction of up to 272.2Ml/d through June, July and August. A Minimum Residual Flow of 22Ml/d would apply and the annual abstraction limit of 29,000Ml/d would apply (it is assumed that the cap would extend from the preceding September through to the end of August). No construction would be required in order to facilitate the increased abstraction associated with the drought permit. Due to operational practice and infrastructure constraints, the abstraction would cease well before natural flows in the river reduce to 22Ml/d and when flows are recovering would not start until flows are much higher than 22Ml/d.	LCP BESP BVP	2041/42 2041/42 2041/42

3. Stage 1 Screening

3.1. Assessment of Likely Significant Effects – Alone

3.1.1. WRSE Stage 1 Screening

The results of WRSEs Stage 1 Screening assessments are presented in Table 3 below. It can be seen that five European Sites have been considered in the screening of the five options. These are:

- Ashdown Forest SAC;
- Ashdown Forest SPA;
- Wimbledon Common SAC;
- Richmond Park SAC; and
- Mole Gap to Reigate Escarpment SAC.

No LSEs were identified 'alone' due to the distance of options from the European Sites and the absence of feasible impact pathways.

Table 3: WRSE Level 1 Screening Results

Option ID Number	Option Title	Option Description	European Sites Assessed (inc distances)	Qualifying Features	SSSI Condition Assessment	Screening Result	Justification for Assessment
SES_SES_HI-ROC_RE2_ALL_r1	Raising of Bough Beech reservoir	This option considers the raising the Bough Beech reservoir embankment	Ashdown Forest SAC, located approximately 13.8km south of the option	Annex I habitats that are a primary reason for selection of this site: 4010 Northern Atlantic wet heaths with *Erica tetralix* 4030 European Dry Heaths Annex II species present as a qualifying feature, but not a primary reason for site selection: 1166 Great Crested Newt *Trituris cristatus*	Ashdown Forest SSSI: Favourable: 20.31% Unfavourable - Recovering: 79.29% Unfavourable - No change: 0.00% Unfavourable - Declining: 0.40%	No Likely Significant Effects	The SAC site is located a significant distance from the works with no effect pathways identified.
			Ashdown Forest SPA, located approximately 13.8km south of the option	Article 4.1 Qualification of the SPA During the breeding season the area regularly supports: Caprimulgus europaeus 1% of the GB breeding population Sylvia undata 1.3% of the GB breeding population		No Likely Significant Effects	
SES_SES_HI-LRE_WT2_ALL_r26	Secombe Centre UV	This scheme provides UV treatment for the Secombe Centre groundwater source which is currently out of supply due to bacti detections in the raw water. Due to the limited footprint available at the Secombe Centre site, the UV treatment plant would be located at Cheam WTW on the 'East Main' which feeds water from Hackbridge, Goatbridge, Woodcode, Oaks, Langley Park, Sutton and Sutton	Wimbledon Common SAC, located approximately 4.7km north west of the option	Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site 4010 Northern Atlantic wet heaths with *Erica tetralix* 4030 European dry heaths Annex II species that are a primary reason for selection of this site 1083 Stag beetle *Lucanus cervus* Wimbledon Common has a large number of old trees and much fallen decaying timber. It is at the heart of the south London centre of distribution for stag beetle *Lucanus cervus*, and a relatively large number of records were received from this site during a recent nationwide survey for the species (Percy et al. 2000). The site supports a number of other scarce invertebrate species associated with decaying timber.	Wimbledon Common SSSI: Unfavourable - Recovering - 94.99% Unfavourable - No Change - 5.01%	No Likely Significant Effect	The option is considered to be located at enough of a distance, with no effect pathways identified, to be at risk of causing an effect on the SAC qualifying species, stag beetle, or its associated habitat of decaying timber.

Option ID Number	Option Title	Option Description	European Sites Assessed (inc distances)	Qualifying Features	SSSI Condition Assessment	Screening Result	Justification for Assessment
		Court Rd. boreholes as well as Secombe Centre. Although the PDO of Secombe Centre is only 4.54 ML/d, the daily licence for the East Main Sources is 66Ml/d and so the plant would need to have this capacity. This would provide pre-emptive protection against any further bacti or cryptosporidium detections at other sources on the main. The anticipated increase in ADO is 2.07 Ml/d and in PDO is 4.54Ml/d.	Richmond Park SAC, located approximately 6.4km north west of the option	Annex II species that are a primary reason for selection of this site 1083 Stag beetle *Lucanus cervus* Richmond Park has a large number of ancient trees with decaying timber. It is at the heart of the south London centre of distribution for stag beetle *Lucanus cervus*, and is a site of national importance for the conservation of the fauna of invertebrates associated with the decaying timber of ancient trees.	Richmond Park SSSI: Unfavourable - Recovering - 100%	No Likely Significant Effect	The option is considered to be located at enough of a distance, with no effect pathways identified, to be at risk of causing an effect on the SAC qualifying species Stag beetle, or its associated habitat of decaying timber.
SES_SES_HI-GRW_RE2_ALL_r22	Outwood Lane	This option considers the increase of daily licence from 3Ml/d to 8Ml/d which will require an equivalent increase in pumping capacity.	Mole Gap to Reigate Escarpment SAC, located approximately 5.2km south of the option	Annex I habitats that are a primary reason for selection of this site 5110 Stable xerothermophilous formations with Buxus sempervirens on rock slopes (Berberidion p.p.) 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) 91J0 Taxus baccata woods of the British Isles * Priority feature Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site 4030 European dry heaths 9130 *Asperulo-Fagetum* beech forests Annex II species present as a qualifying feature, but not a primary reason for site selection 1166 Great crested newt *Triturus cristatus* 1323 Bechstein's bat *Myotis bechsteinii*	Mole Gap to Reigate Escarpment SSSI: Favourable - 52.79% Unfavourable - Recovering - 46.71% Unfavourable - No change - 0.51%	No Likely Significant Effect	No effect pathways identified between the option and the SAC. No new infrastructure required for the scheme and, therefore, the option is unlikely to effect the SAC considering the distance. This includes through susceptibility to hydrological/hydrogeological changes.
SES_SES_HI-GRW_RE1_ALL_r23	Duckpit Wood replacement borehole	Scheme involves the construction of a new Lower Greensand borehole to replace Duckpit Wood and Paines Hill spring licences. Option is mutually exclusive with R24. If R6 is implemented as well as R23, R6 requires its own 3.4 Ml/d independent licence.	No N2k sites for 9km	N/A	N/A	No Likely Significant Effect	No N2k sites within a significant distance (9km) of the scheme. No likely significant effects from the option construction or operation and no pathway identified.

Option ID Number	Option Title	Option Description	European Sites Assessed (inc distances)	Qualifying Features	SSSI Condition Assessment	Screening Result	Justification for Assessment
SES_SES_HI-GRW_RE2_ALL_r7	Enhance borehole output (Lower Greensand) - Water Lane increase in pump capacity & pesticide treatment	This scheme seeks to increase ADO and PDO by increasing pump capacity and lowering pump cut-out at Water lane groundwater source. The scheme aims to remove water quality constraint increasing ADO and PDO to potential yield of the borehole.	No N2k sites for 14km	N/A	N/A	No Likely Significant Effect	No N2k sites within a significant distance (14km) of the scheme. No likely significant effects from the option construction or operation and no pathway identified.

3.1.2. Drought Permits

Hackbridge Drought Permit

A spatial review of designated sites has been undertaken through the EAR. The screening exercise included the potential mechanism of impact arising from the drought permit operation, spatial extent of any effect and the dependence of site/habitat/species on groundwater and/or surface water. The screening exercise for the Hackbridge Drought Permit did not screen in any European designated sites.

Kenley and Purley Drought Permit

A spatial review of designated sites has been undertaken through the EAR. The screening exercise included the potential mechanism of impact arising from the drought permit operation, spatial extent of any effect and the dependence of site/habitat/species on groundwater and/or surface water. The screening exercise for the Kenly and Purley Drought Permit did not screen in any European designated sites.

Outwood Lane Drought Permit

A spatial review of designated sites has been undertaken through the EAR. The screening exercise included the potential mechanism of impact arising from the drought permit operation, spatial extent of any effect and the dependence of site/habitat/species on groundwater and/or surface water. The screening exercise for the Outwood Lane Drought Permit did not screen in any European designated sites.

River Eden Summer Drought Permit and May Drought Permit

The River Eden (downstream of the Chiddingstone abstraction point to its confluence with the River Medway) is the principal reach of interest. There is a clear mechanism for Bough Beech Reservoir and the Bough Beech Brook, downstream of the release, may also be affected by the drought action. Finally, the wider River Medway catchment downstream of the inflow of the River Eden is hydrologically linked so was included in the EAR screening exercise.

Sites have been screened on the basis of their location relative to these three reaches. A further screening has then been completed on the basis of physical mechanisms for effect, as follows:

- Direct hydrological connections;
- Location within the floodplain; and
- Distance from the water feature.

The EAR notes that there are no internationally designated sites within the River Eden catchment downstream of the Chiddingstone abstraction point. Bough Beech Reservoir is not internationally designated and there are no sites downstream of the reservoir to the confluence with the Eden. On the River Medway, the following internationally designated sites are present:

- Peter's Pit Special Area of Conservation (SAC), which lies outside of the Medway floodplain and for which there is no mechanism for impact.
- Medway Estuary and Marshes Special Protection Area (SPA).

The Medway Estuary and Marshes SPA is a significant distance downstream of the abstraction point (in excess of 25km). In addition, the Lower Eden Waterbody does not have Protected Area Status for designated sites. The assessments of hydrological effects and predicted water quality impacts did not identify any observed or predicted effects in the River Medway, even at its confluence with the Eden. Consequently, it can be concluded that designated sites on the Medway can be excluded from the assessment as the drought action will have No Likely Significant Effect on the Medway Estuary and Marshes SPA. There are no other SPA, SAC, possible SAC or potential SPA that require consideration.

3.2. In combination assessment

The scope for LSEs in-combination with other plans and projects in the plan area and with neighbouring water companies, needs to be determined during screening at Stage 1. As all the options were assessed as having no impact pathways, there is no scope for the options to have any effect on European Sites. Therefore, there is no potential for LSEs in-combination and an in-combination assessment is not required.

In respect of the Drought Permits, only the River Eden Drought Permits screened in European sites though concluded there to be no LSE. As the River Eden Drought Permits (May and Summer) reflect the same abstraction at different periods, there can be no temporal overlap and as such no potential for cumulative effects to arise as a result of their operation. Please see the SES Water Drought Plan SEA Section 11 for further information in relation to the assessment of cumulative effects.

3.3. Screening Conclusion

As a result of the Stage 1 Screening exercise, WRSE identified that each of the five supply options featuring in at least one of the Preferred Plan (BVP), LCP and/or BESP can be screened out, both alone and in-combination and do not require a Stage 2 Appropriate Assessment. Further, each of the Drought Permit EARs find there to be no LSE.