FINAL WATER RESOURCES MANAGEMENT PLAN 2024

HABITAT REGULATIONS ASSESSMENT

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AtkinsRéalis

Portsmouth Water final Water Resources Management Plan 2024

Habitat Regulations Assessment: Stage 1 Screening Review and Stage 2 Appropriate Assessment

Portsmouth Water

October 2024

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This document does not purport to provide legal advice.

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Contents

1. Introduction

Terms of Reference

1.1. AtkinsRéalis UK Ltd was commissioned by Portsmouth Water to undertake a Habitats Regulations Assessment (HRA) as part of the environmental assessment process supporting the development of their Water Resources Management Plan 2024 (WRMP24). This HRA presents the findings of the final WRMP24 (fWRMP24) following a consultation exercise on the draft (dWRMP24) and revised draft WRMP24 (rdWRMP24). It is to be noted that this HRA is being published for information only, and not for a further period of public consultation.

1.2. Further to this, the HRA has been updated in response to regulator comments and request for further information. Details are provided below.

Scope and Purpose of this Document

1.3. This Stage 2 HRA (Appropriate Assessment) builds upon the Stage 1 Screening Assessment (Test of Likely Significance) undertaken by Water Resources South East (WRSE)[1] for options being considered by Portsmouth Water[2], as part of the environmental assessment work to support the development of the WRSE Regional Plan. More specifically, this document compiles the WRSE Stage 1 Screening results for all the options in the Portsmouth Water plan and for those requiring a Stage 2 Appropriate Assessment (AA), undertakes a review of the Stage 1 Screening before proceeding to Stage 2.

1.4. Since the dWRMP24 submission, as a result of consultation and updated guidance, the approach to the HRA has also been revised, specifically to address Natural England comments and amend the scope of the in-combination assessment, as agreed with WRSE. This has required liaison with neighbouring water companies as part of this process.

Habitats Regulations Assessment Requirements

1.5. HRA is required by Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended)[3], the 'Habitats Regulations', 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.

1.6. 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'.

1.7. 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,

[1] WRSE (2022) WRSE Regional Plan Habitats Regulations Assessment Stage 1 Screening Report. February 2022.
[2] Portsmouth Water are one of the six water companies in the southeast of England region within the WRSE alliance.
[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] Department of Levelling Up, Housing and Communities (2023) National Planning Policy Framework (NPPF). Paragraph 187.

- **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.

1.8. A number of European Sites fall within the Portsmouth Water fWRMP24 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 UK Water Industry Research (UKWIR) 2021 Guidance[5], a water company is the Competent Authority with respect to HRA. The Water Resources Planning Guidelines (WRPG) for England and Wales[6] state that it must be considered whether an SEA and HRA should be carried out for your plan. Portsmouth Water has a statutory duty to prepare a WRMP and is the Competent Authority for the HRA in respect of it.

1.9. According to WRPG (Section 9.4.3) in addition to stating that the plan must meet the requirements of the Habitats Regulations, it also says that deferring the AA for options identified in the HRA as having a 'likely significant effect' may be acceptable (in a WRMP context only) when all the following criteria have been satisfied:

- Where, due to scientific uncertainty of a novel or complex process and a need for more research, information cannot reasonably be gathered at this revised draft WRMP24 plan stage.
- Options are proposed for delivery late on in the plan (post-2035 for fWRMP24) ensuring that there is time to allow for assessment and delivery of alternatives if necessary.
- Alternatives are included in the plan at company and, or regional level where the avoidance of an adverse effect on integrity of European sites is certain, and these are available, feasible and deliverable.
- A commitment is made to pursue alternatives if an adverse effect on integrity of a European site cannot be avoided for the preferred options set.

1.10. This HRA report presents the Stage 1 Screening undertaken by WRSE on the Portsmouth Water options selected by Portsmouth Water for inclusion in the fWRMP24. Those options that were not screened out, were subject to screening review before being taken forward to Stage 2 AA. The scope for in-combination effects with other plans and projects, within-plan and inter-company effects are also discussed.

1.11. 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.

Addressing Regulators Comments

1.12. The Department for Environment Food & Rural Affairs (Defra) has reviewed Portsmouth Water's rdWRMP24 and Statement of Response (SoR), accompanied by advice from the Environment Agency. Before Defra can refer the fWRMP24 to the Secretary of State for a decision, Portsmouth Water have been asked to provide further information to support the plan.

1.13. Additional information requested by Defra includes ensuring that the HRA adequately covers impacts on the River Meon, noted to be a possible SAC (pSAC). It was also raised that it was unclear where the additional supply benefits of the Source O booster option, which has been selected in the plan, will come from, whether there has been any abstraction increase and whether it has been adequately assessed.

1.14. A further SoR (additional information) was produced by Portsmouth Water to respond to Defra's additional information request and this HRA has been updated in light of that SoR and the information it contained.

1.15. Portsmouth Water are committed to working closely with Natural England and the Environment Agency in the forward development of their plan to ensure options are legally compliant.

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

[6] Water resources planning guideline, April 2023, Environment Agency, Natural Resources Wales, Ofwat. Available online:

https://www.gov.uk/government/publications/water-resources-planning-guideline/water-resources-planning-guideline

This Report

1.16. This report comprises a review of the Stage 1 Screening undertaken by WRSE of Portsmouth Water's preferred options for the fWRMP24 and subsequent Stage 2 AA. The report is set out as follows:

- Section 2 – HRA Methodology;
- Section 3 – The Portsmouth Water fWRMP24 Options;
- Section 4 – HRA Stage 1 Screening Review;
- Section 5 – Appropriate Assessment;
- Section 6 – Conclusion.

2. Methodology

2.1. This methodology section sets out the approach taken to the HRA; the presentation of the WRSE Stage 1 Screening results, review of the screening for options requiring Stage 2 AA and the Stage 2 AA for those options.

2.2. The Portsmouth Water options have all been screened following methodology developed by WRSE. For full details refer to the WRSE Regional Plan Habitats Regulations Assessment Stage 1 Screening Report[7].

Stage 1: Screening 'Test of Likely Significance'

2.3. 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.

2.4. Stage 1 Screening has been undertaken by WRSE and results provided for the Portsmouth Water preferred options (outlined in detail in Section 3) and provide a high-level assessment of the potential for LSE.

2.5. 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 AA. 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.

2.6. The European Court Waddenzee judgement[8] 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*.'

2.7. Clarification has also been provided through case law on the meaning of 'likely' in relation to Bagmoor Wind Ltd v The Scottish Ministers[9]. '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 AA will be required.

2.8. 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".

2.9. 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 Handbook[10] 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".

2.10. 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)

[7] WRSE (2022) WRSE Regional Plan Habitats Regulations Assessment Stage 1 Screening Report. February 2022.
[8] 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.
[9] Bagmoor Wind Limited v The Scottish Ministers, Court of Sessions [2012] CSIH 93.
[10] https://www.dtapublications.co.uk/

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.

2.11. 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.

2.12. 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.

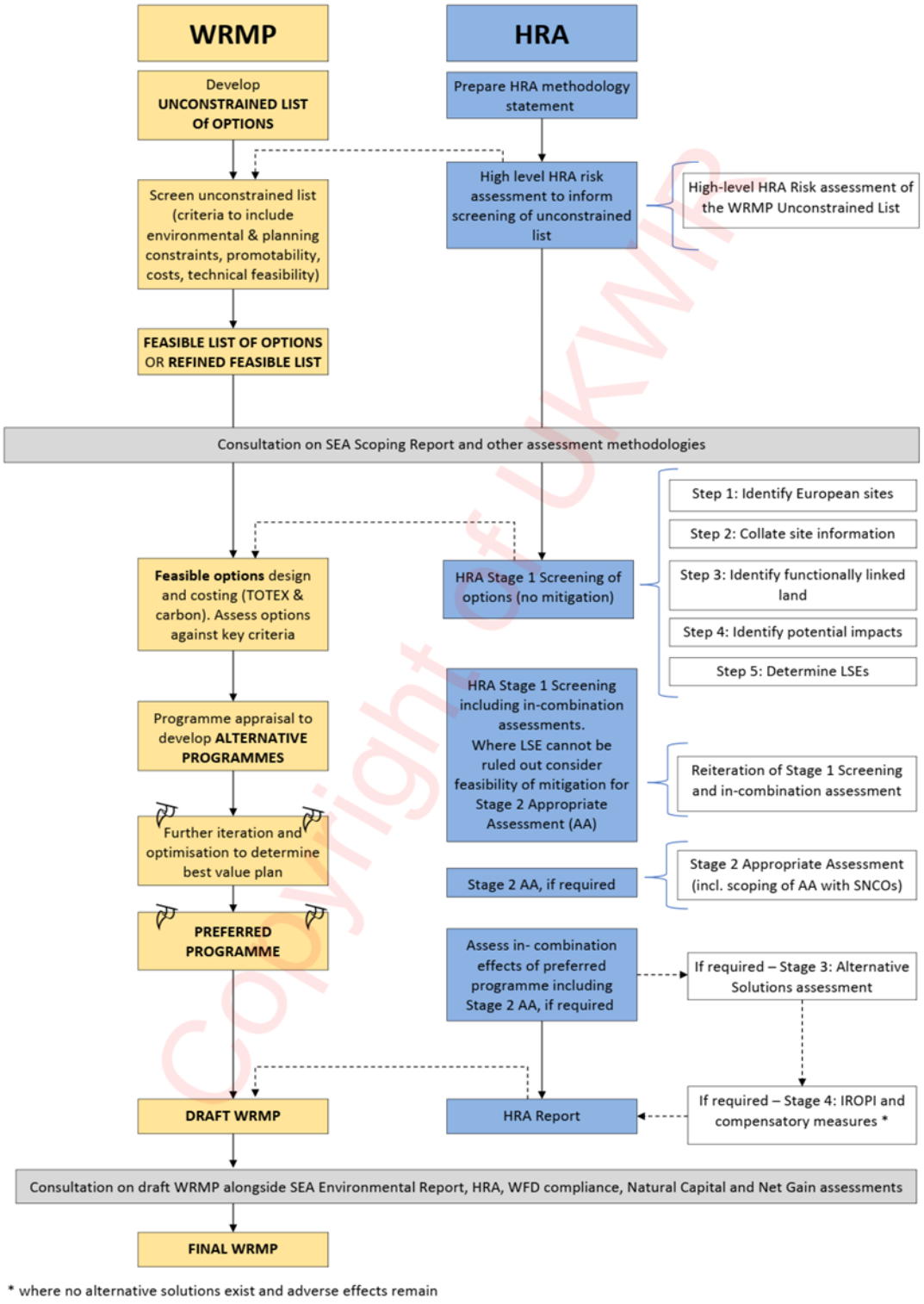
2.13. It is now accepted best practice to undertake a targeted 'source-pathway-receptor' approach to identifying European Sites for screening. This allows for the movement of mobile/ migratory species, such as birds, fish and, if necessary, marine mammals, and their potential to interact with infrastructure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

2.14. According to UKWIR 2021 Guidance there are five steps to be followed when undertaking the screening assessment, these are as follows and discussed below:

- Step 1 – Identify European Sites;
- Step 2 – Collate site information;
- Step 3 – Identify functionally linked land;
- Step 4 – Identify potential impacts;
- Step 5 – Determine LSE.

2.15. With reference to Figure 2-1 below, taken from UKWIR 2021 Guidance, Screening Steps 1 to 5 are carried out for a list of feasible options. During Programme Appraisal, the Screening Steps (i.e. the HRA Stage 1 Screening process) are repeated and it is then that the in-combination assessment would be undertaken. Furthermore, where the assessment indicates LSEs for an option, the scope and feasibility of mitigation should start to be considered but is not included in the assessment.

Figure 2-1 Overview of HRA process in the context of WRMP



2.16. The following screening steps were referenced during the screening review of options being taken forward to AA.

Stage 1: Step 1 – Identifying European Sites

2.17. All European Sites falling within 10 km of an option plus the following 'exceptional pathways' will be included in the initial screening:

- Land functionally linked to a European Site (see Step 3 below) within 2 km;
- SAC designated for bats within 30 km of an option;

- Watercourse partially or wholly designated as a European Site that is crossed, lies adjacent to, upstream or downstream of an option; and
- European Site containing a ground water dependent terrestrial ecosystem (GWDTE) with a potential hydrological or hydrogeological linkage to an option.

2.18. The above screening criteria will identify all potential European Sites that may be affected by water resource option development under the fWRMP24. There is potential for activities within the plan area to affect receptors outside the plan area, due to the far-reaching effects of some impacts. However, use of the above screening criteria will identify all European Sites potentially affected.

2.19. In the case of Source O booster, European Sites within 10 km of groundwater abstraction sites that will see an increase or decrease in abstraction as a result of operation of the booster (under specific conditions, i.e. after the completion of Havant Thicket Reservoir and only during drought), have been included in the assessment on a precautionary basis. There will be no development at the groundwater source sites as they are all existing abstractions. Therefore, the assessment will only focus on the potential effects of increasing or decreasing abstraction of groundwater. Where the European Site is not sensitive to 'human induced changes in hydraulic conditions' or where there is clearly no potential for hydrological connectivity, no LSE will be concluded.

Stage 1: Step 2 – Collate site information

2.20. It will be necessary to undertake a characterisation exercise for all the European Sites identified. This information will be needed to inform the screening assessment and will include the qualifying features of each of the European Sites and their sensitivities. The following sources of information should be consulted in the first instance:

- Standard Data Form (SPA/ SAC) or Ramsar Information Sheet (Ramsar site)[11]; and
- Conservation Objectives and Supplementary Advice on Conservation Objectives (for SPAs/ SACs)[12].

2.21. The Supplementary Advice on Conservation Objectives provide detail with regard to how a European Site's Conservation Objects can be met. The supplementary advice can be accessed for European Sites via the Natural England Designated Sites View webpage[13].

2.22. There is no information readily available about the River Meon, which for the purpose of this assessment is being treated as a pSAC. Therefore, the location and extent of the site was determined from mapping and it was assumed that the habitats present are those typical of spring-fed chalk rivers in Hampshire. The River Itchen SAC was assumed to be similar and the details for that SAC used as a proxy.

Stage 1: Step 3 – Identify functionally linked land

2.23. Functionally linked land is land (or sea) outside of a European Site that is important for supporting one or more qualifying features of the European Site. For example, land used as a high-tide roost for coastal SPA birds.

2.24. A degree of data collection or survey may be required to establish the presence of functionally linked land and this will need to provide credible evidence of the linkage. This would be undertaken at project level HRA if required. The UKWIR Guidance suggests that functionally linked land should be treated according to HRA principles and unless it can be shown there are no LSEs, it should be taken forward to AA.

Stage 1: Step 4 – Identifying potential impacts

2.25. Once a list of European Sites that could be affected by each option has been identified the 'source-pathway-receptor' approach will be applied in more detail. The potential impacts arising from each option will be considered alongside the impact pathways present and the sensitivity of potential receptors, i.e., European Site qualifying habitats and species. The results of this screening will be presented in a screening matrix and will determine whether LSEs can be ruled out, LSEs are uncertain, or if there is potential for LSEs.

[11] Available from Joint Nature Conservation Committee (JNCC) - http://jncc.defra.gov.uk
[12] Available through the Natural England Designated Sites View - https://designatedsites.naturalengland.org.uk/SiteSearch.aspx
[13] Natural England Designated Sites View - https://designatedsites.naturalengland.org.uk/SiteSearch.aspx.

2.26. Table 2-1 outlines a non-exhaustive summary of potential impacts associated with option development and is adapted from UKWIR (2021) guidance[14]. It considers both construction and operation impacts. Decommissioning is not considered at this stage as the options are considered to be operational for the foreseeable future, but it may be necessary to include potential decommissioning impacts during later stages of assessment depending on the lifespan of the option. Maintenance activities may also need to be included at a more detailed stage of assessment.

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

Table 2-1: Potential Impacts for consideration in the Screening assessment

Potential impacts on European Sites	Examples of activities resulting in impacts
Physical loss: • Removal; • Smothering.	Development of built infrastructure associated with the option e.g., new or temporary pipelines, transport infrastructure, temporary weirs. Indirect effects from a reduction in flows, e.g., drying out of water-margin habitat.
Physical damage: • Sedimentation/ silting; • Prevention of natural processes; • Habitat degradation; • Erosion; • Fragmentation; • Severance/ barrier effects; • Edge effects.	Construction activity leading to permanent and/or temporary damage of habitat. Increased recreation associated with option, e.g., cycling, dog walking, water sports. New structures in the landscape creating barriers to movement, including obstruction of flightpaths. Excavation resulting in changes to local hydrology and hydrogeology. Inappropriate siting of an option. Severance of habitat corridors as a result of the option location and design.
Non-physical disturbance: • Noise; • Visual disturbance; • Human presence; • Light pollution.	Noise from construction and temporary pumping activities. Noise from vehicular traffic during operation. Presence of plant and personnel involved in construction and operation of the option, e.g., for maintenance. Increased recreation associated with option, e.g., cycling, dog walking, water sports. Use of artificial lighting during construction or operation of the option, e.g., for security.
Water table/ availability: • Drying; • Flooding/storm water; • Changes to surface water levels and flows; • Changes to groundwater level and flows; • Changes to coastal water movement.	Change to water levels and flows due to water abstraction, reduced storage, or reduced flow releases from reservoirs to reservoirs to river systems. Potential for changes to habitat availability, e.g., reduction in wetted widths of rivers leading to desiccation of macrophyte beds. Changes to groundwater levels from reduced abstraction that result in the re-wetting of an aquifer and mobilisation of nutrients in the catchment. May also result in increased risk of localised flooding.
Toxic contamination: • Water pollution; • Soil contamination; • Air pollution.	Reduced dilution is downstream or receiving waterbodies due to changes in abstraction or reduced compensation flow releases to river systems. Localised soil or water contamination due to mobilised sediments/run-off and/or fuel/oil spillage, e.g., slurry created from excavation work, run-off from concrete or other overlay materials, or leak or spill from plant machinery and vehicles. Air emissions associated with vehicular traffic during construction.

Potential impacts on European Sites	Examples of activities resulting in impacts
Non-toxic contamination: • Nutrient enrichment (e.g., of soils and water); • Algal blooms; • Changes in salinity; • Changes in thermal regime; • Changes in turbidity; • Changes in sedimentation/ silting; • Dust.	Changes to water salinity, nutrient levels, turbidity, thermal regime due to increased water abstraction, discharges, storage, or reduced compensation flow releases to river systems. Emissions of dust during the earthworks, construction of plant and tunnel/ pipeline construction associated with options.
Biological disturbances: • Direct mortality; • Changes to habitat availability; • Out-competition by non-native species; • Selective extraction of species; • Introduction of disease; • Rapid population fluctuations; • Natural succession.	Killing or injury due to construction activity. Creation of new pathway for spread of non-native invasive species or the introduction of disease. Increased disturbance. Landscape and vegetation composition changes.

2.28. The distances over which the above impacts need to be considered greatly varies and should be assessed on a case-by-case basis. There may be scope for indirect or 'knock on' effects, which are not apparent until the assessment is being undertaken. Some generalisations can be made, however, based on professional judgement and current guidance.

2.29. Physical loss / damage are most likely to be significant where the boundary of the option extends within or is directly adjacent to the boundary of a European Site, functionally linked land or important habitat corridor for mobile qualifying species.

2.30. The zone of influence of some impacts will be limited to within or in close proximity to the site of the option, such as lighting impacts, noise, air quality (based on vehicle emissions on site and along transport routes only) and soil contamination. Therefore, it is important to locate options away from European Sites to minimise the risk of such impacts.

2.31. Effects such as water pollution and impacts on the water table / hydrogeology, local surface water hydrology, drainage and flooding need to be considered within the extent of the ground or surface water catchment in which the option sits. These effects will be dependent on hydrological or hydrogeological continuity between the option and the European Site. Where mobile species such as migratory fish are a qualifying feature of a European Sites, sites upstream of options should also be assessed.

2.32. It is also possible to characterise the impacts as this can have a bearing on the potential effects upon European Site qualifying features. Impacts can be characterised in terms of their likelihood, nature, scale, severity and duration. This will be attempted at screening but will be dependent on the information available at the time of assessment.

In-combination effects

2.33. With respect to UKWIR 2021 Guidance, it is during Programme Appraisal when HRA Screening is repeated, that the in-combination assessment is undertaken. The HRA process requires that the potential effects of other plans or projects also be considered 'in-combination'. In-combination effects refer to cumulative effects between the plan or project under consideration, together with the

effects of any existing or proposed projects or plans. The aim is to establish whether there may be an overall LSE in-combination on a European Site.

2.34. UKWIR 2021 Guidance states that "once all options with residual low-level effects (i.e., after mitigation) have been identified, one is able to assess them acting together as a whole plan". In being assessed in such a way in-combination effects within the plan itself, i.e. separate options within the WRMP affecting the same European Site(s), and whether or not this would result in an adverse effect are considered prior to undertaking a wider in-combination assessment. If the whole plan may still have a low-level effect that does not result in site integrity being affected, more detailed in-combination assessment is required.

2.35. Plans and projects external to the rdWMRP24 also being assessed for potential impacts to the same European Sites will need to be identified and subject to in-combination assessment accordingly.

2.36. Further to WRSE requirements and consultation comments, it is also necessary to assess whether there are any in-combination effects with the options of neighbouring water companies. In this case, options within the plans for Southern Water (SWS) and South East Water (SEW).

2.37. This HRA, therefore, considers in-combination effects with other plans and projects external to the fWRMP24, in-combination effects between the options within the Plan itself and between options within neighbouring water companies.

Mitigation

2.38. Although mitigation cannot be considered in the assessment at Stage 1, UKWIR 2021 Guidance suggests that during Programme Appraisal (after the feasible options have been screened and the process in being repeated) that the scope and feasibility of mitigation for options where an LSE has been identified should start to be considered. Mitigation measures are discussed in more detail under Stage 2 AA below.

Stage 1: Step 5 – Determine LSEs

2.39. There are four possible assessment outcomes:

- No effect – where there is no means by which an impact could be had on a European Site;
- No LSE – a low-level effect that is unlikely to be significant on its own;
- LSE Uncertain - an LSE cannot be ruled out or there is some uncertainty as to whether there could be an effect; and
- LSE – significant effects likely. A clear pathway for potential impacts.

2.40. If screening concludes 'No effect', an in-combination assessment is not required and the HRA for that option ends.

2.41. If screening concludes 'No LSE' alone, but there is a low-level effect, but this is not considered to be a significant effect, it will still be necessary to undertake an in-combination assessment. This is because this effect may become significant in-combination and requires the option to be taken forward to Stage 2 AA. If the outcome remains 'no LSE' then the HRA for that option ends.

2.42. If screening concludes 'potential for likely significant effects' alone or effects are uncertain, it will then be taken forward to Stage 2 AA. The in-combination assessment, for that option, can be deferred until Stage 2 as the LSE 'alone' has already been taken forward.

2.43. The HRA screening should be documented in a Screening Report to enable pre-plan discussion with the relevant Statutory Nature Conservation Organisation (SNCO) – in this instance Natural England.

Stage 2: Appropriate Assessment

2.44. 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.

2.45. 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.

2.46. 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.

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

2.47. 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 fWRMP24.

2.48. 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.

2.49. 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.

Stage 2: Step 2 – Information gathering

2.50. 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.

2.51. 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'.

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

2.52. 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[15]. 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.

2.53. 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"[16].

2.54. It must be noted that, with reference to caselaw[17], 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.

Mitigation Measures

2.55. 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.

[15] Opinion of Advocate General Kokott, paragraph 49 in European Commission v UK (2005) ECR I-9017 Case C-6/04
[16] Natural England (2019) MPA Conservation Advice Glossary of Terms. Available here: https://designatedsites.naturalengland.org.uk/pdfs/MPA_CAGlossary_March2019.pdf
[17] Feeney versus Oxford City Council and the Secretary of State CLG (24th October 2011) Case No CO/3797/2011 and the Cairngorms Campaign and others versus the Cairngorms National Park Authority and others 2012 SOH153

2.56. 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.

2.57. Measures identified as feasible during Programme Appraisal can now be brought into the assessment.

Stage 2: Step 4 – Assessing in-combination effects

2.58. The in-combination assessment process, as outlined above, will be revisited at Stage 2 to ascertain whether any options within the fWRMP24 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.

Guidance and Caselaw

2.59. This HRA with respect to the Portsmouth Water fWRMP24 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).

Legislative Change

2.60. 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 fWRMP24 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 fWRMP24 is assessed may also be necessary.

Limitations

2.61. It must be noted that only the options highlighted by Portsmouth Water 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.

3. Portsmouth Water's fWRMP24 Options

Existing Options

3.1. It is important to recognise that the fWRMP24 is not starting from a 'blank sheet of paper' and Portsmouth Water (as with all water companies) operate a water supply network that has been developed over many decades and is the result of previous Plans and investment decisions made during periods when environmental matters were often not considered as important as they are today. Portsmouth Water set out their existing/current licences in Table 2 of Appendix 5B (fWRMP24), which is adapted as follows in Table 3-1 and includes the relevant Water Industry National Environment Programme (WINEP) investigations for the sources.

Table 3-1 - Existing Abstractions for Public Water Supply

Source	WINEP investigation catchment	Current Licence (mega litres per day)
Source O	09PW100003	8.00
Source P	09PW100003	10.25
Source M	09PW100002	6.39
Source L	09PW100002	20.87
Sources QRST	08PW100007	28.38
Source A	08PW100005	43.61
Source D	08PW100004	1.75
Source C	08PW100004	18.76
Source E	08PW100002	0.45
Sources GFH	08PW100002	18.14
Source J	08PW100003	22.73
Source I	08PW100003	5.59
Source B	09PW100004	98.00
Source N	08PW100001	27.27
Source K	09PW100004	11.37
Total	n/a	321.56

3.2. Recognising that the current water supply network could potentially have adverse effects on the environment, the fWRMP24 includes commitments to assess the effects of Portsmouth Water's current abstractions and to implement mitigation to protect and enhance the aquatic environment, and focuses on the following drivers:

- Restore the effects of potential over-abstraction from aquifers and rivers;
- Prevent deterioration in environmental status from growth in abstraction;
- Prevent future deterioration due to environmental changes, i.e. linked to climate change (moving to proactive protection, rather than reactive);
- Ensure no significant negative effects from proposed options as part of the fWRMP24;
- Prevent negative effects from temporary increases in abstraction (i.e. via drought permits); and
- Ensure our time limited licence variations are sustainable.

3.3. These drivers will primarily be delivered via WINEP. Appendix 5B of the fWRMP24 collates these workstreams and details Portsmouth Water's approach to investigating and achieving sustainable abstraction, including assumptions for the fWRMP24.

3.4. Each of Portsmouth Water's sources derive water from the Chalk aquifer and as such the investigation programme covers each of Portsmouth Water's 21 sites across 10 catchment units.

3.5. Portsmouth Water have nine schemes being delivered in AMP8 (2025-2030) and one in AMP9 (2030-2035).

3.6. Of note, investigations will be at the catchment level to ensure the investigations review and assess all cumulative influences on the aquatic environment (i.e. wider catchment pressures), rather than consider abstraction sources in isolation to ensure the best outcome.

3.7. The outcome of the investigation will be to assess what interventions are required to deliver the required environmental outcomes. If the investigations show that abstraction is a constraint (in whole or in part), then options appraisal would be undertaken. The outcome would largely fall into one of four core categories:

- An abstraction source is subject to a licence reduction;
- A nature-based solution is implemented to bring wider environmental benefits;
- An abstraction source is subject to a licence reduction and/or a nature-based solution;
- An alternative supply option is considered (which may include relocating the source further downstream); and
- A combination of all the above.

3.8. Each of Portsmouth Water's existing sources are subject to investigation through the WINEP process and are therefore excluded from this HRA. For further information on the WINEP process and outcomes please see Appendix 5B of the fWRMP24.

Assessment of Associated Sources

3.9. Further to Defra's request for additional information, it has been necessary to set out and confirm the sources currently supplying Source O and how these will change following the upgrade and operation of the Source O booster. Pywr water resources modelling carried out by AtkinsRéalis on behalf of Portsmouth Water has shown that the Source O boosters are a bottleneck for moving water throughout Portsmouth Water's network. Following upgrade and during operation, abstractions will switch from five sources mostly in the east (Source L, Source Q, Source T, Source S and Source P) to sources mostly in the west (Source K, Source D, Source G, Source C, Source F, Source N, Source H and Source J), due to the need to replace water diverted eastwards by the booster. The location of these sources is shown in Figure 3-1 below.

[Redacted for SEMD reasons]

Figure 3-1 Location of Current Source Licences within Portsmouth Water WRMP Area

3.10. The Source O booster scheme will only be operational once Havant Thicket Reservoir has been built (selected in the plan for 2033-34), improving the conjunctive use benefit of the reservoir in a drought scenario. Portsmouth Water has assumed no Deployable Output (DO) benefit for the Havant Thicket Reservoir and Source O booster scheme in a 'normal year' (non-drought) scenario, i.e. there will be no abstraction from the reservoir and, therefore, no need to re-distribute water.

3.11. In summary, the Source O booster causes a redistribution of abstraction along with a net increase of around 10 Ml/d in abstraction relative to a 'without' booster scenario. Of this, around 4 Ml/d would be taken from Havant Thicket Reservoir, with the remaining 6Ml/d representing an increase in groundwater abstraction from the western sources. Given the above information, it has been necessary to update the HRA to include the potential impacts from both increased abstraction at groundwater sources in the west, which affect the River Meon, and decreased abstraction at sources in the east.

3.12. The groundwater sources to the west that will be additionally drawn upon include four sources, which are in proximity to the River Meon. As the River Meon is fed almost entirely by springs[18], it is reasonable to assume that increased abstraction from nearby groundwater sources could reduce water levels in the Meon, jeopardising it meeting its Environmental Flow Indicators (EFI) resulting in negative effects on aquatic habitats and species, and failure to achieve or maintain 'good ecological status' under the Water Framework Directive.

3.13. Furthermore, there is a risk that cessation of abstraction in the east, which would result in increased levels of groundwater, could lead to localised flooding or the mobilisation of nutrients from re-wetted parts of the aquifer, leading to enrichment with watercourses. The potential for either impact to occur will need to be investigated.

Havant Thicket Reservoir

3.14. A key legacy from WRMP19, which has formed a cornerstone of Portsmouth Water's ongoing planning process, is the development of Havant Thicket Reservoir. The reservoir enables Portsmouth Water to store winter spring flows for use in the summer, increase the quantity of water supplied to Southern Water, which in turn allows them to make environmental improvements by reducing their reliance on sensitive chalk sources in Hampshire. In addition to supporting reduced abstraction on chalk rivers, the scheme has an overall biodiversity net gain and will offer a new community leisure facility for the area.

3.15. The reservoir scheme, as proposed in WRMP19, is unchanged and has been included in the baseline assumptions for the fWRMP24 (with a revised delivery date of 2031/32). It was supported by customers and regulators and is being developed in partnership with Southern Water. This will be the first new reservoir to be built in the southeast since the 1970s. Havant Thicket Reservoir has received planning permission and work onsite is ongoing.

3.16. Havant Thicket Reservoir is part of the Portsmouth Water baseline supply forecast and therefore included in the Water Available for Use (WAFU) calculation. The reservoir has received planning permission and is in the construction phase and therefore excluded from this HRA.

Continuation of Bulk Supplies to SWS

3.17. Portsmouth Water have an existing bulk supply agreement with Southern Water to supply their Hampshire Southampton East (HSE) zone. The bulk supply exports up to 15 Ml/d from Portsmouth to Southern Water's HSE WRZ. Flow is abstracted from the River Itchen at Source A, treated at Source A treatment works and then transferred to Southern Water.

3.18. Within the WRSE investment model the 15 Ml/d bulk supply to the HSE WRZ is treated as part of the baseline until 2028–29. As such the existing bulk supply agreement is excluded from assessment.

WINEP Investigations

3.19. Portsmouth Water are committed to an extensive programme of WINEP investigations. At present, only one scheme, 08PW100002 (River Meon), is being investigated under a Habitats Directive Driver, in relation to existing abstractions (Source E, and GFH).

3.20. Where identified, the HD WINEP Investigation and/or Options Appraisal will determine the impacts of water company activities, or permit / licence conditions/standards on a European site or Ramsar

[18] http://www.meonvalleypartnership.org.uk/river

site or to determine the costs and technical feasibility of meeting targets. Where this is the objective of the investigation, the impacts will need to be considered in view of the latest condition status of the relevant site. For European sites, this will also consider the Conservation Objectives for the site and, where available, the Supplementary Advice on Conservation Objectives (SACO) for that site. Where specific flow and/or water quality targets have not been specified in the SACO, the Common Standards for Monitoring Guidelines (CMSG) will be used to identify the targets to be considered in the assessment of risk to favourable conditions status.

3.21. The WINEP investigations will consider Recent Actual (RA), Fully Licenced (FL) and Future Predicted (FP) abstractions. The FP abstraction will be defined by identifying the predicted growth in abstraction. If the WINEP investigation shows that (a) there is an identified risk for affecting the favourable condition status of a of a European/nationally protected site or species or (b) there is an identified risk for preventing attainment of favourable condition status of a European/nationally protected site or species, then a key success measure will be the successful delivery of an Options Appraisal that identifies a preferred solution to be implemented. The possible solutions would largely fall into one of five core categories:

- An abstraction source is subject to a licence change.
- Implementing catchment measures e.g. nature-based solution(s) to bring wider environmental benefits, whilst licenced abstraction remains unchanged.
- An abstraction source is subject to a smaller licence reduction with potential impacts being offset / mitigated by nature-based solution(s).
- An alternative supply option is considered (which may include relocating the source further downstream or a whole new source of water).
- A combination of two or more the above.

3.22. In addition to the individual investigations, a catchment scale investigation will also be undertaken to consider the combined effects of Public Water Supply (PWS) and no-PWS abstractions in-combination on groundwater levels and surface flows and the subsequent effects on transitional and marine water bodies that are considered European or Ramsar sites.

3.23. The River Meon is not a designated European site, but is being considered as a potential SAC by Defra (although not formally notified as a possible SAC (pSAC) with reference to UK policy). The River Meon is a characteristic chalk stream and likely supports the Habitats Directive Annex I habitat: H3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation and associated Annex II species such as southern damselfly, Atlantic salmon, white-clawed crayfish, lamprey species, bullhead and otter. It is hydrologically linked to the Solent and Southampton Water SPA and Ramsar site; the SPA being designated for breeding common tern, little tern, Mediterranean gull, roseate turn and sandwich turn; non-breeding black-tailed godwit, brent goose, ringed plover and teal; and its waterbird assemblage; whilst the Ramsar site is designated under Criterion 1 (estuarine habitats), Criterion 2 (plant and invertebrate assemblage), Criterion 5 (bird assemblages of international importance) and Criterion 6 (ringed plover, dark-bellied brent goose, teal and black-tailed godwit). The River Meon flows into the designations approximately 2.5 km from the coast at Ordnance Survey National Grid Reference (OSNGR) SU54200462.

3.24. Portsmouth Water are also aware that compensatory measures have been developed by Southern Water to address potential adverse effects on the River Itchen SAC from the implementation of two options within Southern Waters Drought Plan; the Candover Augmentation Scheme and Lower Itchen Sources Drought Orders. In accordance with the Habitats Regulations and consideration of the derogations at Stage 3, Southern Water completed a review of all feasible and reasonable alternative solutions to the inclusion of the Candover Augmentation Scheme and the Lower Itchen Sources Drought Orders in the final Drought Plan. This review concluded that there were no alternatives available during the lifetime of the Drought Plan (2022 to 2027).

3.25. As a consequence, Southern Water's HRA examined whether inclusion of the Drought Orders could be shown to be required on the grounds of Imperative Reasons of Overriding Public Interest (IROPI). Southern Water's assessment concluded there were substantive grounds for the Secretary of State to be able to agree that IROPI was appropriate in relation to these two Drought Orders in view of the high risk of requiring an Emergency Drought Order to ration water supplies using rota cuts or standpipes if the Drought Orders could not be implemented in a severe drought. It concluded 'the major adverse effects of an Emergency Drought Order on people and businesses in the Hampshire Southampton East Water Resource Zone (WRZ) outweigh the effects on the River Itchen SAC'.

3.26. The Environment Agency agreed that Southern Water had a good case that it had no alternatives to its Lower Itchen sources Drought Order and Candover Drought Order scheme in order to maintain public water supplies until the implementation of long-term water resource solutions.

3.27. Having determined there was a good case for IROPI, the final stage of the HRA process was to identify appropriate compensation measures. The compensatory measures and associated implementation timetables were agreed with Natural England and the Environment Agency for both the Lower Itchen Sources Drought Order and the Candover Augmentation Scheme Drought Order.

3.28. The compensation measures include a 10-year implementation package of river restoration and catchment management measures, including chalk stream habitat restoration measures and habitat enhancement to help protect and enhance rivers with floating vegetation (often dominated by water crowfoot), southern damselfly, white-clawed crayfish and Atlantic salmon. The River Meon was identified as a candidate for receiving such measures and can, therefore, be considered as a 'site identified, or required, as compensatory measures for adverse effects on habitats sites', with respect to NPPF Paragraph 187c.

3.29. With respect to the River Meon and the existing Source E and GFH abstractions (i.e. Source E and Group GFH), the rdWRMP explains that Portsmouth Water are planning to reduce our reliance on these sources in all Environmental Destination scenarios. The proposed reductions for these sources under Low, Medium and High Environmental Destination scenarios is set out in Table 3-2, below

Table 3-2 - Potential licence reductions for Sources E and FGH Group under different Environmental Destination Scenarios

Source	Current	Environmental Destination Scenarios			
		Low destination (normal year)	Low destination (1 in 500 year)	Medium destination	High destination
Source E	0.45 Ml/d	0.10 Ml/d	0.00 Ml/d	0.00 Ml/d	0.00 Ml/d
Group FGH	18.14 Ml/d	11.20 Ml/d	13.17 Ml/d	10.45 Ml/d	7.94 Ml/d

Source: Table 2, Appendix 5b rdWRMP24

3.30. Regional investment has shown that Portsmouth Water can solve the supply-demand balance when the deployable output is reduced or switched off at these sources largely by demand reduction options and also through future supply options including bulk supplies from Southern Water, water recycling and infrastructure upgrades (e.g. Source O Booster), as set out in our rdWMRP24.

3.31. Should the conclusion of the WINEP investigation on the River Meon determine that the existing abstractions result in deterioration of the European Site by reference to its qualifying features and conservation objectives, the HRA will be updated and mitigation measures will be proposed. The scope of the mitigation will be developed in conjunction with Natural England and the Environment Agency. Mitigation would likely comprise a package of adaptive management, river restoration, and water quality improvement schemes. Implementing such measure would also likely result in a number of wider environmental benefits including:

- biodiversity and ecological improvements;
- natural flood management (e.g. slowing the flow);
- improvement in water quality of surface water waterbody (e.g. reducing silt input from agricultural land);
- contribution to overall catchment resilience; and
- supporting improved access, amenity, and engagement

3.32. In addition to the proposed HRA work in relation to the River Meon, it is to be further noted that currently, the company wide WINEP work will provide a greater level of additional clarity on environmental effects related to the water supply/ demand balance. Although not identified as yet, this additional clarity may result in the identification of other potential significant effects on other European sites. If this becomes apparent, Portsmouth Water is committed to discussing these with Natural England and the Environment Agency in order to agree a robust course of further assessment.

3.33. Portsmouth Water is committed to the delivery of any required mitigation, or should it be required, compensatory measures.

Options Subject to HRA

3.34. Portsmouth Water have set out a suite of both demand and supply options in their fWRMP24. Of the supply options, nine options are subject to HRA having been selected in either the Best Value Plan (BVP) or one of their alternative plans (Least Coast Plan (LCP) or Best Environmental and Societal Plan (BESP)). The HRA screening assessments, completed by WRSE, have determined whether or not these options would require an AA for construction, operation or both. The option descriptions and dates they are selected are set out in Table 3-2 below. The results of the WRSE screening assessments for these options are presented in Section 4. Only those options that require AA, and feature in at least one of the plans pre-2050, are then assessed at Stage 2.

Bulk Transfers

3.35. Where an option involves the bulk transfer of water between two water companies, there will be a respective donor and recipient company. In each case the recipient undertakes the assessment and shares the outcome of the assessment with the donor company. Portsmouth Water have not assessed any such options at this time. The option 'Bulk import of potable water from Southern Water (Otterbourne to Source A)' has not been assessed as at the time of writing as there were no details on the proposed route pipeline available, see option details in Table 3-3 below. Please note that this Option is selected in 2039-2040 and as such it is considered detailed HRA will be undertaken as part of WRMP29 when full design details will be known.

Table 3-3 Portsmouth Water fWRMP24 Supply Options

Option Title	WRSE Option ID Number	Year	Brief Option Description
Drought Permit: Source S	PRT_PRT_RE-DRP_ALL_ALL_source S	2025-2026	When Swanbourne Lake is already dry (i.e. in a severe drought, 1:100 years[19] or worse - not dry due to abstraction) there will be increased abstraction from Source S from licensed limit of 2.5 Ml/d to 11.5 Ml/d. This would require a drought permit. Under normal dry conditions abstraction from Source S is limited due to its assumed impact on the Arundel Site of Special Scientific Interest (SSSI). Source S is part of the QRST Group. The group abstraction licence limited to 41 Ml/d and not more than 2,100 Ml in any period of 60 days. The permit would increase the group limit to 49.5 Ml/d.
Upgrade Source O Booster to 25 Ml/d	PRT_PRT_HI-ROC_ALL_ALL_source O booster	2039-2040	Network reinforcement at the Source O Boosters to increase connectivity and unlock trapped DO associated with Havant Thicket Reservoir. The other key change is that the option has no benefit in a 'normal', non-drought year. This is to conserve water within Havant Thicket Reservoir ahead of a drought. Source O Booster is currently supplied by abstraction from Source L, Source Q, Source T, Source S and Source P groundwater sources, which are mostly to the east. The upgrade and operation of the boosters will result in reduced abstractions at these easterly sources and increased abstraction at the Source K, Source D, Source G, Source C, Source F, Source N, Source H, and Source J groundwater sources, which are generally to the west. The increased abstraction will be used to replace water that is being diverted eastwards by the booster.
Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 1)	PRT_PRT_HI-ROC_WRT1_ALL_Works A treatment	2046-2047	Increased treatment capacity at Works A to accommodate increased draw from Havant Thicket Reservoir and pass forward of treated water to Reservoir B service reservoir.
Pipeline associated with Works A treatment capacity increase to distribute water from Havant Thicket Reservoir	PRT_PRT_HI-ROC_NET_ALL_Works A to Reservoir B 20	2046-2047	Increased draw from Havant Thicket reservoir via Bedhampton to increased treatment capacity at Works A. Pass forward treated water to Reservoir B service reservoir.

[19] A one in 100-year (1:100) weather event is an event of a size that will be equalled or exceeded on average once every 100 years.

Option Title	WRSE Option ID Number	Year	Brief Option Description
Additional Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2)	PRT_PRT_HI-ROC_WRT2_ALL_Works A treatment	2048-2049	Increased treatment capacity at Works A to accommodate increased draw from Havant Thicket Reservoir and pass forward treated water to Reservoir B service reservoir. Noting that this is a later and further increased capacity to the previous option for increasing capacity at Works A.
New Treatment works at Service Reservoir C to treat water from Havant Thicket Reservoir (Phase 1)	PRT_PRT_HI-ROC_WT1_ALL_hoadshill treatment	2051-2052	This option includes a new WTW adjacent to an existing service reservoir site.
Pipeline associated new Treatment works at Service Reservoir C to distribute water from Havant Thicket Reservoir	PRT_ht to ott-hoadshil r	2061-2062	Spur from proposed raw water transfer between Havant Thicket and Otterbourne. This option includes booster pumping but it is likely that sufficient head (of water pressure) will be available from the pipeline.
Upgrade to treatment works at Service Reservoir C to treat water from Havant Thicket Reservoir (Phase 2)	PRT_PRT_HI-ROC_WT1_ALL_hoadshill treatment	2069-2070	Further capacity at the water treatment works.
Potable Resource for Otterbourne to Source A	SWS_PRT_HI-TFR_HSE_ALL_otterbo-Source A p	2039-2040	This option entails the reversal of flow in the existing and planned bulk supplies to Southern Water (i.e. once Southern Water has more water in Hampshire, bulk supplies from Portsmouth Water to Southern Water will end and instead supplies from Southern Water will be received to Portsmouth Water). An import of up to 45 Ml/d is proposed. It is likely that a new pipeline and significant upgrades would be needed. **As noted in the SEA (Section 11.2), at the time of writing there was no design information available to allow assessment of this option. Portsmouth Water have committed to completing a review of the upgrades required prior to WRMP29 so that the appropriate environmental assessments can be completed during the next iteration of the Plan.** This option has not been considered further in this HRA Report.

4. HRA Stage 1 Review

WRSE Stage 1 Screening Results

4.1. The results of the HRA Stage 1 Screening produced by WRSE for the options being taken forward by Portsmouth Water are summarised in Table 4-1 below. All options selected have been subject to Stage 1 Screening; refer to the WRSE report[20] (the detailed screening assessments can be requested from WRSE). Within the table, green indicates no likely significant effects (LSE), amber indicates that the effects are uncertain and red indicates LSE.

4.2. As this is the WRSE assessment, the Upgrade Source O option assessment does not include consideration of groundwater sources. This is considered in the Portsmouth Water review below.

[20] WRSE (2023) WRSE Regional SEA Environmental Report – Appendix H Habitats Regulations Assessment. September 2023.

Table 4-1 Summary of WRSE Portsmouth Water Option HRA Screening

Option Title	WRSE Option ID Number	Year	Screening Result	Option would require a Stage 2 AA
Drought Permit: Source S	PRT_PRT_RE-DRP_ALL_ALL_Source S drought	BVP: 2025 BESP: 2025 LCP: 2025	Uncertain effects on Arun Valley SPA	Yes
			Uncertain effects on Arun Valley SAC	
			Uncertain effects on Arun Valley Ramsar site	
			Uncertain effects on Duncton to Bignor Escarpment SAC	
Upgrade Source O Booster to 25 Ml/d	PRT_PRT_HI-ROC_ALL_ALL_Source O booster	BVP: 2039 BESP: 2034 LCP: 2034	LSE on Kingley Vale SAC	Yes
			LSE on Solent Maritime SAC	
			LSE on Chichester and Langstone Harbours SPA	
			LSE on Chichester and Langstone Harbours Ramsar site	
			LSE on Singleton and Cocking Tunnels SAC	
			LSE on Rook Clift SAC	
			No LSE on Pagham Harbour SPA and Pagham Harbour Ramsar site	
Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 1)	PRT_PRT_HI-ROC_WRT1_ALL_Works A treatment	BVP: 2046/47 BESP: 2046/47 LCP: 2046/47	Uncertain effects on Chichester and Langstone Harbours SPA	Yes
			Uncertain effects on Chichester and Langstone Harbours Ramsar site	
			Uncertain effects on Solent Maritime SAC	
Pipeline associated with Works A treatment capacity increase to distribute water from Havant Thicket Reservoir	PRT_PRT_HI-ROC_NET_ALL_Works A to Reservoir B 20	BVP: 2046/47 BESP: 2046/47 LCP: 2046/47	No LSE on Chichester and Langstone Harbour SPA/Ramsar site	No
			No LSE on Solent Maritime SAC	

Option Title	WRSE Option ID Number	Year	Screening Result	Option would require a Stage 2 AA
Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2)	PRT_PRT_HI-ROC_WRT2_ALL_Works A treatment	BVP: 2048/49 BESP: 2048/49 LCP: 2048/49	Uncertain effects on Chichester and Langstone Harbours Ramsar site	Yes
			Uncertain effects on Solent Maritime SAC	
			Uncertain effects on Solent Maritime SAC	
New Treatment works at Service Reservoir C to treat water from Havant Thicket Reservoir (Phase 1)	PRT_PRT_HI-ROC_WT1_ALL_hoadshill treatment	BVP: 2051/52 BESP: 2051/52 LCP: 2051/52	No European sites have been identified within 5 km	No
Pipeline associated new Treatment works at Service Reservoir C to distribute water from Havant Thicket Reservoir	PRT_ht to ott-hoadshil r	BVP: 2051/52 BESP: 2051/52 LCP: 2051/52	No LSE on Portsmouth Harbour SPA/Ramsar site	No
			No LSE on Solent and Southampton Water Ramsar site	
			No LSE on Solent Maritime SAC	
			No LSE on Solent and Isle of Wight Lagoons SAC	
			No LSE on Chichester and Langstone Harbours Ramsar site	
			No LSE on Butser Hill SAC	
Additional treatment capacity at treatment works at Service Reservoir C to treat water from Havant Thicket Reservoir (Phase 2)	PRT_PRT_HI-ROC_WT2_ALL_hoadshill treatment	BVP: - BESP: 2061/62 LCP: 2063/64	No European sites have been identified within 5 km	No

Stage 1 Screening Review Results

4.3. In accordance with the methodology outlined in Section 2, only the screening results for options requiring a Stage 2 AA, as outlined in Table 4-1 above, were reviewed. The outcome of the assessment is summarised in Table 4-2 below.

4.4. Following a request for additional information from Defra, the assessment has been amended to including European Sites that may be affected by the increased or decreased abstraction at groundwater sources during operation of Source O. Where added to Table 4-2, the closest groundwater source to the European Site has been given.

4.5. Details of the relevant European Sites are provided in Appendix A. The detailed screening assessment tables for the four options are provided in Appendix B. The additional screening associated with Source O groundwater sources is provided in Table B-4 in Appendix B and summarised in the table below.

Table 4-2 Preferred Option Stage 1 Screening Review

Option Title	WRSE Option ID Number	Year	European Sites Screened	Likely Significant Effect	HRA Stage 2 AA?	Notes
Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 1)	PRT_PRT_HI-ROC_WT1_ALL_Works A treatment	2046 - 2047	Chichester and Langstone Harbours SPA (approximately 930 m south)	No LSE	No	Option not taken forward to AA. The following additional European Sites were identified during the Stage 1 Screening Review: • Solent and Isle of Wight Lagoons SAC; • Solent and Dorset Coast SPA; • Portsmouth Harbour SPA; • Portsmouth Harbour Ramsar site; • Singleton and Cocking Tunnels SAC. Increased output of both brine water and treated wastewater into the Solent may lead to localised changes in water chemistry. However, it is considered unlikely that these outputs will lead to significant effects on the qualifying features of the European sites, given the discharges will be via a long sea outfall and discharged into the Solent over 4.8 km outside of any of the European sites with the exception of the Solent and Dorset Coast SPA. While the discharges will occur within the Solent and Dorset Coast SPA, it is considered unlikely that localised changes in water chemistry from an existing outfall will have a measurable impact on the qualifying
			Chichester and Langstone Harbours Ramsar site (approximately 930 m south)	No LSE	No	
			Solent Maritime SAC (approximately 1.1 km southeast)	No LSE	No	
			Solent and Isle of Wight Lagoons SAC (approximately 2.1 km south)	No LSE	No	
			Solent and Dorset Coast SPA (approximately 2.5 km southwest)	No LSE	No	
			Portsmouth Harbour SPA (approximately 3.5 km southwest)	No LSE	No	
			Portsmouth Harbour Ramsar site (approximately 3.5 km southwest)	No LSE	No	
			Briddlesford Copses SAC (approximately 19 km southwest)	No effect	No	
			Singleton and Cocking Tunnels SAC (approximately 20 km northeast)	No effect	No	

Option Title	WRSE Option ID Number	Year	European Sites Screened	Likely Significant Effect	HRA Stage 2 AA?	Notes
						bird species that forage within the SPA. No effect is anticipated on Singleton and Cocking Tunnels SAC or Briddlesford Copses SAC given the distance from the option and absence of connectivity. No feasible impact pathways were identified.
Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2)	PRT_PRT_HI-ROC_WRT2_ALL_Works A treatment	2048 - 2049	Chichester and Langstone Harbours SPA (approximately 930 m south)	No LSE	No	Option not taken forward to AA. In the following additional European Sites were identified during the Stage 1 Screening Review: • Solent and Isle of Wight Lagoons SAC; • Solent and Dorset Coast SPA; • Portsmouth Harbour SPA; • Portsmouth Harbour Ramsar site; • Singleton and Cocking Tunnels SAC. Increased output of both brine water and treated wastewater into the Solent may lead to localised changes in water chemistry. However, it is considered unlikely that these outputs will lead to significant effects on the qualifying features of the European sites, given the discharges will be via a long sea outfall and discharged into the Solent over 4.8 km outside of any of the
			Chichester and Langstone Harbours Ramsar site (approximately 930 m south)	No LSE	No	
			Solent Maritime SAC (approximately 1.1 km southeast)	No LSE	No	
			Solent and Isle of Wight Lagoons SAC (approximately 2.1 km south)	No LSE	No	
			Solent and Dorset Coast SPA (approximately 2.5 km southwest)	No LSE	No	
			Portsmouth Harbour SPA (approximately 3.5 km southwest)	No LSE	No	
			Portsmouth Harbour Ramsar site (approximately 3.5 km southwest)	No LSE	No	
			Briddlesford Copses SAC (approximately 19 km southwest)	No effect	No	

Option Title	WRSE Option ID Number	Year	European Sites Screened	Likely Significant Effect	HRA Stage 2 AA?	Notes
			Singleton and Cocking Tunnels SAC (approximately 20 km northeast)	No effect	No	European sites with the exception of the Solent and Dorset Coast SPA. While the discharges will occur within the Solent and Dorset Coast SPA, it is considered unlikely that localised changes in water chemistry from an existing outfall will have a measurable impact on the qualifying bird species that forage within the SPA. No effect is anticipated on Singleton and Cocking Tunnels SAC or Briddlesford Copses SAC given the distance from the option and absence of connectivity. No feasible impact pathways were identified.
Drought Permit: Source S	PRT_PRT_RE-DRP_ALL_ALL_Source S drought	2025 - 2026	Arun Valley SPA (approximately 8.4 km northeast)	No effect	No	Option does not need to be taken forward to AA. NE consultation raised the fact that Arun Valley SAC, SPA, and Ramsar site have vulnerabilities due to water abstraction. This pathway, as discussed in paragraph 4.3 below, has been ruled out. Therefore, no effect is concluded for the Arun Valley designations. It was considered that there were no feasible impact pathways for Duncton to Bignor Escarpment SAC due to the absence of connectivity and distance from the option. Therefore, they were screened out.
			Duncton to Bignor Escarpment SAC (approximately 4.7 km north)	No effect	No	
			Arun Valley SAC (approximately 8.4 km northeast)	No effect	No	
			Arun Valley Ramsar (approximately 8.4 km northeast)	No effect	No	
			Solent and Dorset Coast SPA (approximately 8.9 km south)	No effect	No	
			The Mens SAC (approximately 14.6 km northeast)	No effect	No	
			Ebernoe Common SAC (approximately 16.6 km north)	No effect	No	

Option Title	WRSE Option ID Number	Year	European Sites Screened	Likely Significant Effect	HRA Stage 2 AA?	Notes
			Singleton and Cocking Tunnels SAC (approximately 9.8 km northwest)	No effect	No	Solent and Dorset Coast SPA, The Mens SAC, Ebernoe Common SAC, Singleton and Cocking Tunnels SAC and Kingley Vale SAC are additional European Sites identified during the WRSE Stage 1 Screening Review. It is considered that there was no feasible impact pathways due to the absence of connectivity and distance from the option. Therefore, they were screened out. No feasible impact pathways were identified; it is not predicted that there would be impacts alone or in-combination as a result of the option. Following consultation NE asked that Chichester and Langstone SPA/ Ramsar site, Pagham Harbour SPA/ Ramsar site and Solent Maritime SAC are include in the assessment for Drought Permit: Source S. These additional European Sites are discussed separately below the table.
			Kingley Vale SAC (approximately 13 km west)	No effect	No	
Upgrade Source O Booster to 25 Ml/d (including groundwater sources – distance and	PRT_PRT_HI-ROC_ALL_ALL_Source O booster	2039 - 2040	Solent Maritime SAC (approximately 3 km south)	Yes	Yes	Option taken forward to AA. Solent Maritime SAC, Chichester and Langstone Harbours SPA and Ramsar site were not screened in during the Stage 1 Screening. As they have hydrological connectivity to the option, it was concluded there is potential for LSE.
			Chichester and Langstone Harbours SPA (approximately 3 km south)	Yes	Yes	
			Chichester and Langstone Harbours Ramsar (approximately 3 km south)	Yes	Yes	

Option Title	WRSE Option ID Number	Year	European Sites Screened	Likely Significant Effect	HRA Stage 2 AA?	Notes
direction from source given)			River Meon pSAC (closest point approximately 0.07 km north of Source H source)	Yes	Yes	The River Meon pSAC, River Itchen SAC, Solent and Southampton Water SPA and Ramsar sites, and Arun Valley SAC, SPA and Ramsar sites were added to the assessment after consideration of groundwater sources. Due to the sensitivity of the River Meon and River Itchen to hydraulic change and groundwater pollution, it was concluded there was potential for LSE. Effects on Solent and Southampton Water sites, Arun Valley sites and Solent and Isle of Wight Lagoons SAC were uncertain as they are located downstream and are sensitive to pollution to groundwater and/ or hydraulic change. Butser Hill SAC, Solent and Dorset Coast SPA, East Hampshire Hangers SAC, Duncton to Bignor Escarpment SAC lack a feasible impact pathway. Pagham Harbour SPA and Ramsar site was screened out as no feasible impact pathways were identified. The WRSE screening considered LSE on Rook Clift SAC and Singleton and Cocking Tunnels SAC due to hydrological connectivity via the Chichester Chalk groundwater body. However, these sites are both over 8 km from the option, over
			River Itchen SAC (closet point approximately 5 km west of Source D source)	Yes	Yes	
			Solent and Southampton Water SPA (closest point approximately 6.3 km south of Source D source)	Effect uncertain	Yes	
			Solent and Southampton Water Ramsar site (closest point approximately 6.3 km south of Source D source)	Effect uncertain	Yes	
			Arun Valley SAC (closest point approximately 8.5 km northeast of Source S source)	Effect uncertain	Yes	
			Arun Valley SPA (closest point approximately 8.5 km northeast of Source S source)	Effect uncertain	Yes	
			Arun Valley Ramsar site (closest point approximately 8.5 km northeast of Source S source)	Effect uncertain	Yes	
			Solent and Isle of Wight Lagoons SAC (closest point approximately 9.2 km south of Source H source)	Effect uncertain	Yes	
			Kingley Vale SAC (approximately 2.4 km north)	No LSE	No	

Option Title	WRSE Option ID Number	Year	European Sites Screened	Likely Significant Effect	HRA Stage 2 AA?	Notes
			Butser Hill SAC (closest point approximately 5.7 km northeast of Source K source)	No effect	No	which an impact from a pollution event is unlikely to be discernible. Therefore, they have been screened out during the Stage 1 Screening Review. The WRSE screening considered that there would be LSE on the Kingley Vale SAC via groundwater body pollution; however, given the distance of the SAC from the option and that the SAC is not vulnerable to hydrological changes or water borne pollution, it is considered that there will be no LSE. The Mens SAC and Ebernoe Common SAC are European sites identified during the Stage 1 Screening Review. It is considered that there was no feasible impact pathways due to their distance from the option, and therefore they were screened out.
			Solent and Dorset Coast SPA (closest point approximately 6.2 km south of Source J BH1 source)	No LSE	No	
			East Hampshire Hangers SAC (closest point approximately 8 km northeast of Source E source)	No effect	No	
			Duncton to Bignor Escarpment SAC (closest point approximately 4.8 km northeast of Source R source)	No effect	No	
			Singleton and Cocking Tunnels SAC (approximately 8.5 km northeast)	No effect	No	
			Pagham Harbour SPA (approximately 10 km south)	No effect	No	
			Portsmouth Harbour Ramsar site (approximately 10 km south)	No effect	No	
			Rook Clift SAC (approximately 10 km north)	No effect	No	
			Ebernoe Common SAC (approximately 23.2 km northeast)	No effect	No	
			The Mens SAC (approximately 24.7 km northeast)	No effect	No	

Drought Permit: Source S – Arun Valley SAC, SPA and Ramsar site

4.6. The Arun Valley SAC, SPA and Ramsar sites are located approximately 8.4 km to the northeast of the Drought Permit: Source S, upstream and on the opposite (east) bank of the River Arun. The SAC, SPA and Ramsar sites are located predominantly on alluvium, peat and head superficial deposits that overlie bedrock comprising Gault Formation and underlying Folkestone Formation, which are hydraulically isolated from the Chalk Group from which Source S abstracts. Although there is potential for the Arun SAC, SPA and Ramsar sites to receive some springflow from the Chalk escarpment that runs along the southern boundary of the SAC/ SPA/ Ramsar site, these Chalk springs would be fed from a different, and hydraulically isolated, Chalk aquifer block to that from which Source S abstracts. Groundwater from these separate Chalk aquifer blocks discharges to the River Arun where it cuts through the South Downs at the Arun Gap and the river effectively separates the groundwater systems of the two aquifer blocks. Therefore, the risk of abstraction changes at Source S impacting groundwater levels in or springflows to the Arun SAC/ SPA/ Ramsar site is considered negligible.

Drought Permit: Source S Additional European Sites

4.7. Following consultation, Natural England requested that the following European Site be included in the assessment of the Drought Permit: Source S option due to them being within the 'zone of influence':

- Chichester and Langstone SPA;
- Chichester and Langstone Harbour Ramsar site;
- Pagham Harbour SPA;
- Pagham Harbour Ramsar site; and
- Solent Maritime SAC.

4.8. All of the above sites are located over 12 km from the option and, therefore, lie outside the scope defined in the methodology of this assessment. There will be no construction associated with this option; therefore, there is no scope for construction impacts to affect the European Sites. Regardless of this, it can also be stated that there are no direct hydrological links, and the option lies outside of any area identified in the Solent Waders and Brent Goose Strategy[21], which indicates that functionally linked land is unlikely to be affected.

4.9. Given the above, the only possible impact pathway that the proposed increased abstraction could have an effect is via the Chichester Chalk groundwater body, within which the option sits, during operation. Pagham Harbour SPA/ Ramsar site and Solent Maritime SAC, are both outside the groundwater body and, therefore, are considered highly unlikely to be affected. Chichester and Langstone SPA/ Ramsar site do lie within the groundwater body and although, according to Joint Nature Conservancy Council information[22] the SPA is sensitive to pollution to groundwater and the Ramsar site could be adversely affected by pollution – domestic sewage and eutrophication[23], neither are sensitive to hydraulic change. As there is no construction associated with this option, hydraulic effects as a consequence of abstraction are the only means of effect via this pathway. Therefore, it is considered that although there is a potentially a feasible impact pathway via the groundwater body, it is likely to be a weak pathway due to distance, and as the SPA and Ramsar site are not reliant on groundwater or sensitive to hydraulic change, the option is unlikely to have an effect.

In-combination assessment

4.10. It is necessary to consider impacts alone and in-combination when deciding whether or not an option will have an LSE on European sites. Upgrade Source O Booster to 25 Ml/d, is the one option where an LSE is considered likely. An LSE is not considered likely as a result of either of the Works A treatment capacity increase to treat water from Havant Thicket Reservoir options; however, there is scope for a LSE in-combination with other plans and projects. Whether there will be in-

[21] https://solentwbgs.wordpress.com/page-2/
[22] https://jncc.gov.uk/jncc-assets/SPA-N2K/UK9011011.pdf
[23] https://jncc.gov.uk/jncc-assets/RIS/UK11013.pdf

combination effects is dependent on proximity/ connectivity, timing (i.e. when the options come forward for development).

4.11. The Drought Permit: Source S option has been screened out alone, and potential for in combination LSE is also ruled out as discussed below.

4.12. Given the nature of the proposals and the LSEs considered for the options, the following potential effects could act in-combination:

- Reduction/ change in water quality or water chemistry, including amounts of suspended solids, turbidity, pH and temperature;
- Changes to groundwater/ hydrogeological changes, including a reduced or increased supply following changes to abstraction rates, which may affect local surface water features or the behaviour of the aquifer;
- Disturbance of qualifying species, particularly birds, within the European Sites;
- Loss or severance of habitat linkages/ connective habitats important for supporting biodiversity and genetic diversity at European sites; and,
- Loss of functionally linked land or disturbance of qualifying bird species of SPAs and Ramsar sites using said land.

4.13. In addition to the other options within fWRMP24 there is scope for in-combination effects with the other plans and projects external to the plan, see Table 4-4 below.

Table 4-4 Plans and projects that were considered in-combination

Plan or Project	Potential in-combination effects
Nationally Significant Infrastructure Projects (NSIPs) in the region	• Habitat loss/ disturbance, including functionally linked land and connective habitat; • Hydrology and hydrogeological changes; • Water quality/ quantity; • Species disturbance from noise and vibration, visual intrusion.
Commercial, residential, minerals or waste development arising from Local Authority land use plans	
Shoreline management plans	
Local transport plans	
Other large-scale development projects requiring HRA	

4.14. Given the localised nature of the options and any potential impacts, the in-combination assessment was reduced to local authorities within and surrounding the option only. The following specific sources were considered when undertaking the in-combination assessments for the options:

- National Infrastructure Planning[24];
- South Downs National Park;
- Chichester Council;
- Havant Borough Council;
- Portsmouth City Council;
- West Sussex County Council; and
- Hampshire County Council.

4.15. An internet search of the websites of competent authorities and statutory bodies (as listed above) was carried out to identify any other projects or plans that have required or are undergoing HRA screening and/ or Appropriate Assessment for potential impacts upon the European Sites identified and, therefore, may have an in-combination effect with the option. The results are presented in Appendix C for Upgrade Source O Booster to 25 Ml/d and Appendix D for Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 1) and Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2).

4.16. Only the European sites which were identified in the Stage 1 screening for the options have been included in the table below. Any additional European sites covered by the HRAs of other plans and projects are not listed as they are not relevant to this HRA.

[24] https://infrastructure.planninginspectorate.gov.uk/

Options with 'No Effect'

Drought Permit: Source S

4.17. Impacts on any European sites as a result of this option have been screened out as no feasible impact pathways exist as the result of increased abstraction from an existing borehole. It is not predicted that there would be impacts alone or in-combination as a result of abstraction. Given this finding, Drought Permit: Source S option is not discussed further within this report.

Inter-company in-combination effects

4.18. It is a requirement that options within the fWRMP24 of neighbouring water companies are also assessed. Information has been received from WSP for Southern Water (SWS) and Atkins for South East Water (SEW) detailing the outcome of their screening assessments. These indicate which European Sites could be affected by relevant options and the relevant impact pathway. This information can then be used to cross-reference against the assessment for Portsmouth Water options to determine if there is scope for an in-combination effect.

4.19. Although there may be scope for in-combination effects between options due to proximity to a given European Site, there are temporal considerations, as the delivery of options within different timeframes may rule out combined impacts. It is difficult to determine if options proposed to be implemented within different timeframes could still have in-combination effects. However, a precautionary approach has been taken and each potential in-combination effect assessed on a case-by-case basis.

4.20. In general, it is considered that construction effects for options can be avoided or mitigated to an acceptable level and usually they are of relatively short duration and localised to the works area. Therefore, the main scope for in-combination effects is considered to come from options with potential operational impacts. These are usually of longer duration, increasing the risk of temporal cross-over and, for the most part, options associated with a discharge (having an unknown effect).

4.21. It should be noted that there is scope for discrepancies between data sets produced for different water companies, depending on their specific instruction, and minor changes, such as names of options may be made at the last minute. However, it is noted that establishing a common understanding means that areas of risk with respect to option type/ type of impact can be highlighted regardless.

4.22. All options provided by SES and SEW assessing potential impacts on the same European Sites as Portsmouth Water options have been considered. However, where in the assessment of an option (either Portsmouth Water or other water company) the result is 'no effect', the option cannot result in an in-combination effect and has not been included in the assessment provided in Appendix E and summarised in Table 4-6 below.

Southern Water

4.23. There are a total of 26 European Sites in common between Portsmouth Water and SWS HRA assessments. The SWS results were filtered to remove those European Sites on which options have 'no effect'. This combined with removing Portsmouth Water options with 'no effect' on European sites, leaves 13n European Sites.

4.24. The European Sites not included in Table 4-6 are listed below:

- Briddlesford Copses SAC;
- Butser Hill SAC;
- Duncton to Bignor Escarpment SAC;
- Ebernoe Common SAC;
- Pagham Harbour SPA;
- Rook Clift SAC;
- Singleton and Cocking Tunnels SAC;
- The Mens SAC.

South East Water

4.25. There are only two European Sites considered in both the Portsmouth Water and SEW assessments. The European Sites and the SEW options they are considered for are listed below:

- Singleton and Cocking Tunnels SAC (RZ5 Sub-Zonal Scheme - Oakhanger to Alton);
- Ebernoe Common SAC (RZ4 Sub-Zonal Scheme - Ewshot to Itchel, RZ5 Sub-Zonal Scheme - Oakhanger to Alton).

4.26. As the Portsmouth Water assessment concludes 'no effect' for these European Sites, they have been excluded from Table 4-6 below.

4.27. The River Itchen SAC is subject to a WINEP investigation and the impact of SEW's existing abstraction cannot be ruled out. As the River Itchen SAC has been added to the Portsmouth Water assessment due to proximity to abstraction sites, there is scope for an in-combination effect. However, as the Source O booster will only be operational once Havant Thicket Reservoir has been built, it is unlikely to be operational until 2033-34. At this point it is understood that abstractions local to the River Itchen will have ceased by 2030. Coupled with the need for further future modelling to improve the characterisation of supply scheme yield benefits and the fact that the Source O option will only occur in a drought scenario, the risk of in-combination effects is greatly reduced. Future discussions will be necessary with SEW and Natural England to agree the best course of action with respect to option deployment and the River Itchen SAC.

Conclusion

4.28. It can be seen from the results, that there is no potential for in-combination effects between any SEW options with Portsmouth Water fWRMP24 options, as those considering the same European Sites had been assessed as having 'no effect'. In association, SEW are considering impacts of existing abstractions on the River Itchen; however, in-combination effects are considered unlikely.

4.29. With respect to SWS, there are 17 options with scope for in-combination effects with Portsmouth Water options on 12 European Sites. The full inter-company in-combination assessment is provided in Appendix E and those option with a potential in-combination effect are summarised in Table 4-6 below.

Table 4-6 Summary of SWS Options with Scope for In-combination Effects

European Site	SWS Option	Portsmouth Water Option	Effect on Portsmouth Water Option Assessment?
Chichester and Langstone Harbours SPA/ Ramsar site	Recycling (HSE): Recharge of Havant Thicket reservoir from Budds Farm (60Ml/d)	Upgrade Source O Booster to 25 Ml/d	Already taken through to AA
Chichester and Langstone Harbours Ramsar site	Bulk import (HSE): Havant Thicket Reservoir to Otterbourne WSW pipeline - both sections	Upgrade Source O Booster to 25 Ml/d	Already taken through to AA
Solent and Dorset Coast SPA	Recycling (IOW): Sandown WTW (8.5Ml/d)	Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2)	Now taken to AA
	Desalination (SWZ): Tidal River Arun (20Ml/d)		
	Desalination (SWZ): Tidal River Arun (20Ml/d) Phase 2		
Solent Maritime SAC	Bulk import (HSE): PWC Source A to Otterbourne WSW (21Ml/d)	Upgrade Source O Booster to 25 Ml/d	Already taken through to AA
	Interzonal transfer (HSW-HRZ): Romsey Town and Broadlands valve (3.1Ml/d)		
	Recycling (HSE): Recharge of Havant Thicket reservoir from Budds Farm (60Ml/d)		
	Bulk export (SNZ): Pulborough to Havant Thicket Reservoir (20Ml/d)		
	Bulk export (SNZ): Pulborough to Havant Thicket Reservoir (50Ml/d)		
	Bulk import (HSE): Havant Thicket Reservoir to Otterbourne WSW pipeline – both sections		
Portsmouth Harbour SPA/ Ramsar site	Bulk import (HSE): Havant Thicket Reservoir to Otterbourne WSW pipeline – both sections	Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2)	Now taken to AA
	Recycling (HSE): Recharge of Havant Thicket reservoir from Budds Farm (60Ml/d)		
Arun Valley SAC, SPA and Ramsar site	Bulk export (SNZ): Pulborough to Havant Thicket Reservoir (50Ml/d)	Upgrade Source O Booster to 25 Ml/d	Already taken through to AA
	Groundwater (SNZ): New borehole at Petworth (4Ml/d)		

European Site	SWS Option	Portsmouth Water Option	Effect on Portsmouth Water Option Assessment?
	Interzonal transfer (SNZ-SWZ): Pulborough to SWZ (30Ml/d)		
Solent and Southampton Water SPA and Ramsar site	Interzonal transfer (HAZ-HKZ): Andover to Kingsclere - reversible (10Ml/d)	Upgrade Source O Booster to 25 Ml/d	Already taken through to AA
	Interzonal transfer (HSE-HWZ): Otterbourne WSW to Yew Hill bi-directional (74Ml/d)		
	Groundwater (HRZ): New boreholes at Romsey (4.8Ml/d)		
	Groundwater (HSW): Test MAR (5.5Ml/d)		
	Groundwater (IOW): New boreholes at Newchurch (LGS) (1.9Ml/d)		
	Bulk export (SNZ): Pulborough to Havant Thicket Reservoir (50Ml/d)		
	Interzonal transfer (HSW-HSE): River Test WSW to Otterbourne WSW (45Ml/d)		
Solent and Isle of Wight Lagoons SAC	Groundwater (IOW): New boreholes at Newchurch (LGS) (1.9Ml/d)	Upgrade Source O Booster to 25 Ml/d	Already taken through to AA

4.30. In conclusion, the assessment identified scope for in-combination effects where similar pathways and timeframes existed in relation to construction and where there was potential for combined discharges during operation (into The Solent). With respect to potentially combined construction impacts, given mitigation and distances from European Sites, any effect (if discernible) was highly unlikely to be significant. In many cases, in-combination effects by these means could be ruled out. Where there was scope for joint operational discharge into The Solent (associated with Budds Farm sewage works in the case of SWS options), without more detail the in-combination effects had to be classified as 'uncertain'. Insufficient information is available at this stage to conclude 'no LSE'. Further assessment and modelling will be required and discharges subject to permitting / regulation, which gives some confidence that a combined effect could be identified and avoided.

Within-Plan in-combination effects

4.31. In addition to external in-combination effects it is necessary to consider what the implications for European Sites might be between options within the Plan. This component of the assessment will help to determine if the Plan overall will result in LSEs through in-combination effects. With reference to the assessment for inter-company option impacts, whether there could be an in-combination effect depends on when the option will be delivered and then whether the predicted effects could combine to result in an LSE on the European Site.

4.32. Table 4-7 below sets out the results for the within-Plan in-combination assessment. It focusses on the European Site and which options within the Plan are likely to affect it, noting this excludes those options considered to have 'no effect'.

4.33. The table below only includes designated sites where more than one option is considered likely to have any LSE. If only one option within the plan is considered likely to have an LSE then an within-plan in-combination effect is not possible.

4.34. Given Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 1) and Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2) will not happen at the same time, as Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2) is for a further increase in the water treatment capacity at the same location, no in-combination effect is considered possible for these two options.

Table 4-7 Within-Plan In-combination Effects Results

European Site	Options which may affect the European Site (excluding those with 'no effect')	Year Selected	Screening outcome/ impact pathways	In-combination effect?
Solent Maritime SAC	Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 1)	2047	There is some scope for localised changes in water chemistry due to the release of discharges into the channel. This is unlikely to have a significant effect on the qualifying features of the European site.	No, given the impacts as a result of the Upgrade Source O Booster to 25 Ml/d option are only related to construction works, and given the temporal separation between the options it is considered unlikely that an in-combination effect will occur.
	Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2)	2049	There is some scope for localised changes in water chemistry due to the release of discharges into the channel. This is unlikely to have a significant effect on the qualifying features of the European site.	
	Upgrade Source O Booster to 25 Ml/d	2035	During the construction phase of this scheme there is some scope for pollution impacts on the European site.	
Chichester and Langstone Harbours SPA and Ramsar	Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 1)	2047	There is some scope for localised changes in water chemistry due to the release of discharges into the channel. This is unlikely to have a significant effect on the qualifying features of the European site.	No, given the impacts as a result of the Upgrade Source O Booster to 25 Ml/d option are only related to construction works, and given the temporal separation between the options it is considered unlikely that an in-combination effect will occur.
	Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2)	2049	There is some scope for localised changes in water chemistry due to the release of discharges into the channel. This is unlikely to have a significant effect on the qualifying features of the European site.	
	Upgrade Source O Booster to 25 Ml/d	2035	During the construction phase of this scheme there is some scope for pollution impacts on the European site.	
Solent and Isle of Wight Lagoons SAC	Works A treatment capacity increase to treat water from Havant Thicket	2047	There is some scope for localised changes in water chemistry due to the release of discharges into the channel. This is unlikely to have a significant effect on the	No, as this European Site is only screened in due to operational effects of Source O at existing groundwater sources, there is considered to be

European Site	Options which may affect the European Site (excluding those with 'no effect')	Year Selected	Screening outcome/ impact pathways	In-combination effect?
	Reservoir (Phase 1)		qualifying features of the European site.	no scope for in-combination effects.
	Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2)	2049	There is some scope for localised changes in water chemistry due to the release of discharges into the channel. This is unlikely to have a significant effect on the qualifying features of the European site.	
	Upgrade Source O Booster to 25 Ml/d (groundwater sources only)	2035	SAC added to option assessment due to operational impact from existing groundwater sources only.	
Solent and Dorset Coast SAC	Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 1)	2047	There is some scope for localised changes in water chemistry due to the release of discharges into the channel. This is unlikely to have a significant effect on the qualifying features of the European site.	No, as this European Site is only screened in due to operational effects of Source O at existing groundwater sources, there is considered to be no scope for in-combination effects.
	Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2)	2049	There is some scope for localised changes in water chemistry due to the release of discharges into the channel. This is unlikely to have a significant effect on the qualifying features of the European site.	
	Upgrade Source O Booster to 25 Ml/d (groundwater sources only)	2035	SAC added to option assessment due to operational impact from existing groundwater sources only.	

Screening Summary

4.35. It can be seen that five European sites were added to the assessment for Drought Permit: Source S during the review of the WRSE Stage 1 Screening. These were:

- Solent and Dorset Coast SPA;
- The Mens SAC;
- Ebernoe Common SAC;
- Singleton and Cocking Tunnels SAC; and,
- Kingley Vale SAC.

4.36. However, this option was screened out based on the information provided as it was considered that this option would have no effect on any European Site.

4.37. The Stage 1 Screening review for Upgrade Source O Booster to 25 Ml/d was amended to rule out any LSE on Kingley Vale SAC. Following the Stage 1 Screening review, it was also considered that there would be no effect on Rook Clift SAC, Pagham Harbour SPA and Ramsar site and Singleton and Cocking Tunnels SAC. The Mens SAC and Ebernoe Common SAC were screened in during the review; however, it was considered there would be 'no effect' on the European Sites as a result of the option.

4.38. Further to this, following the request for further information from Defra and the consideration of the Source O sources, seven additional European Sites plus the River Meon were included in the assessment for this option. These sites are:

- Arun Valley SPA;
- Arun Valley SAC;
- Arun Valley Ramsar site;
- Solent and Isle of Wight Lagoons SAC;
- Solent and Southampton Water SPA;
- Solent and Southampton Water Ramsar site;
- River Itchen SAC; and
- River Meom (pSAC).

4.39. For both Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 1) and Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2) options, any LSE was ruled out for all European Sites, including any additional sites screened in during the Stage 1 Screening review.

4.40. Potential inter-company in-combination effects were identified for Upgrade Source O Booster to 25 Ml/d and Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2) options with 17 SWS options for 12 European Sites. No within-plan in-combination effects were identified.

4.41. Upgrade Source O Booster to 25 Ml/d and Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2) are the only options taken forward to AA due to LSEs on European Sites. Upgrade Source O Booster to 25 Ml/d for effects alone and in-combination, and Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2) due to in-combination effects with SWS options.

5. Appropriate Assessment

Findings of the AA

5.1. The Upgrade Source O Booster to 25 Ml/d option has been shown to require AA, this option has been assessed in light of the conservation objectives for each European Site. In making the assessment of whether an option (construction/ operation/ both) may have adverse effects on the integrity of a European Site, potential avoidance and mitigation measures are considered.

5.2. Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2) has only been brought forward to AA due to potential in-combination effects with SWS options due to combined discharges to The Solent, which has multiple designations. It is considered highly likely that with detailed assessment at project stage, regular monitoring and the permitting and regulation associated with an operational discharge, that adverse effects in-combination on site integrity will be avoidable. However, until this information is available, the assessment has had to conclude 'adverse effects uncertain'.

5.3. The AA for the Upgrade Source O Booster to 25 Ml/d and Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2) options are summarised in Table 5-1 below and presented in full in Appendix F.

Table 5-1 AA Results for fWRMP24 Options

WRSE Option ID Number	Option Title	European Sites taken forward	Avoidance/ Mitigation	Adverse effects on site integrity?
PRT_PRT_HI-ROC_ALL_ALL_Source O booster (and groundwater sources)	Upgrade Source O Booster to 25 Ml/d	- Solent Maritime SAC; - Chichester and Langstone Harbours SPA; and - Chichester and Langstone Harbours Ramsar site.	Best practice measures during construction. Sensitive design and avoidance/ mitigation measures required during construction to minimise impacts.	**No.** The potential pathway relating to water quality is one that can be resolved through standard mitigation measures. However, this must be confirmed based on project design and will therefore need to be subject to further assessment at the project stage.
		- River Meon (pSAC); - River Itchen SAC	Modelling suggests that there is potential to partially rebalance abstractions with spare licence capacity. Further modelling and assessment required. Monitoring and adherence to abstraction permits during operation.	**Uncertain** It is considered likely that adverse effects can be avoided given the timeframe before the option becomes operational and with appropriate resource planning and liaison with regulators to develop robust mitigation proposals.
		- Solent and Southampton Water SPA; - Solent and Southampton Water Ramsar site; - Arun Valley SAC; - Arun Valley SPA;	Risk of pollution from reduced groundwater abstraction needs to be investigated. Risk of hydraulic impacts from local reduction in abstractions needs to be investigated. Monitoring and adherence to	**No** Given the distance of the European Sites from the groundwater sources (6.3 km, 8.5 km and 9.2 km at the closest point respectively for Solent and Southampton Water sites, Arun Valley and Solent and Isle of Wight Lagoons) and that the option will only be operational during drought

WRSE Option ID Number	Option Title	European Sites taken forward	Avoidance/ Mitigation	Adverse effects on site integrity?
		- Arun Valley Ramsar site; - Solent and Isle of Wight Lagoons SAC.	abstraction permits during operation.	scenarios, the option was considered unlikely to result in adverse effects on species and habitats.
PRT_PRT_HI-ROC_WRT2_ALL_Works A treatment	Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2)	- Solent and Dorset Coast SPA; - Portsmouth Harbour SPA; and - Portsmouth Harbour Ramsar site.	Monitoring and adherence to discharge permit during operation.	**Uncertain.** Considered feasible but will require detailed assessment at project-level to ascertain the potential effects of combined discharges on tern habitat / prey resource.

In-combination Assessment

5.4. The in-combination assessment was completed as part of Stage 1 Screening and identified a number of plans that may have in-combination effects with one or more options for Upgrade Source O Booster to 25 Ml/d. The HRAs found in the in-combination assessment that could not be ruled out at Stage 1 are detailed in Appendix G for Upgrade Source O Booster to 25 Ml/d, alongside further assessment to determine whether or not, following mitigation, the options are likely to result in adverse effects on site integrity for the European Sites in question.

5.5. No potential in-combination effects were identified with other plans and projects for Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2) at Stage 1 and so no further assessment is required here.

5.6. Based on the findings of the in-combination assessment, it is considered feasible for the Upgrade Source O Booster to 25 Ml/d option to have no adverse effects on the integrity of European Sites in-combination with other plans and projects provided they are sensitively designed, and mitigation adequately addresses all potential impacts alone and in-combination. However, a detailed in-combination assessment cannot be undertaken until the project stage. This is due to the potential for effects to be avoided or designed out and for temporal scope of impacts alone and in-combination to be more accurately assessed.

5.7. Project-level HRA will be required for the Upgrade Source O Booster to 25 Ml/d and should take on board the high-level in-combination assessment presented here, updated as appropriate.

6. Conclusions

6.1. This report presents the findings of a HRA Stage 1 Screening and Stage 2 AA for the options proposed by Portsmouth Water for inclusion in fWRMP24. The WRSE screening results were presented for all options, but only those assessed by WRSE as having a LSE were subject to a screening review, before being taken forward to AA, if necessary.

6.2. Four options were reviewed and one, Upgrade Source O Booster to 25 Ml/d, remained screened in for AA. The Drought Permit: Source S was reassessed and found to have 'No Effect' on the European Sites screened and both Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 1) and Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2) were reassessed and found to have no LSE 'alone', as presented in Table 4-2 above.

6.3. The in-combination effects assessment at Stage 1 identified potential in-combination effects with other plans and projects affecting water quality and the Upgrade Source O Booster to 25 Ml/d option. This did not affect the screening assessment as the relevant European Sites were already being taken to AA for the option. No within-plan in-combination effects were identified. However, potential inter-company in-combination effects were identified for Upgrade Source O Booster to 25 Ml/d and Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2) options with 17 SWS options for 12 European Sites. The outcome did not affect the assessment for Upgrade Source O Booster to 25 Ml/d, as this was already taken through to AA; however, Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2) was screened back in for AA as a result of potential in-combination effects.

6.4. In the absence of detailed project-specific information, a high-level assessment of the potential for options within fWRMP to have an adverse effect on the integrity of European Sites was undertaken at Stage 2 AA. As the Drought Permit: Source S option had been screened out, the AA only includes the Upgrade Source O Booster to 25 Ml/d and Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2) options.

6.5. A total of ten European Sites were included in the AA for Upgrade Source O Booster to 25 Ml/d following the inclusion of potential effects from groundwater sources in the assessment:

- Solent Maritime SAC;
- Chichester and Langstone Harbours SPA;
- Chichester and Langstone Harbours Ramsar site;
- Arun Valley SAC;
- Arun Valley SPA;
- Arun Valley Ramsar site;
- River Itchen SAC;
- Solent and Dorset Coast SPA;
- Solent and Isle of Wight Lagoons SAC;
- Solent and Southampton Water SPA; and,
- Solent and Southampton Water Ramsar site.

6.6. It is considered reasonable to anticipate from the information available that the Upgrade Source O Booster to 25 Ml/d option could be delivered in a manner which avoids any adverse effects on the integrity of the European Sites. This is through a combination of modelling and investigation to inform design, sensitively designing, programming and constructing options, and using standard mitigation techniques. The potential pathway relating to water quality is generally one that can be resolved through standard mitigation measures, unless linked to aquifer recharge and release of nutrients, in which case alternative measures considering the management of abstractions would be required. Impacts relating to water quantity may also need to be managed in this way. However, this must be confirmed based on project design. HRA will therefore be required at project stage for Upgrade to Source O Booster to 25 Ml/d to fully assess all potential impacts upon European sites once the option design has been finalised and the construction programme is known.

6.7. Three European Sites were included in the AA for Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2): Solent and Dorset Coast SPA, Portsmouth Harbour SPA/ Ramsar site. As the option was screened in due to potential in-combination effects with other

discharges to The Solent from SWS options, an adverse effect cannot be ruled out without further assessment.

6.8. Taking into account the findings of the assessment, it can reasonably be concluded that the inclusion of most options in fWRMP24 will not have an adverse effect on the integrity of the European sites alone or in-combination. However, further assessment at a project-level will be required to allow any conclusion to be drawn with certainty for Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2).

6.9. The Portsmouth Water Environmental Destination has evolved in parallel to the development of supply schemes for fWRMP24 and has resulted in a highly complex water resource planning problem, for which further work is required to understand how the scheme benefits may vary under different Environmental Destination scenarios.

6.10. The drought related abstractions modelled with the Source O booster and Havant Thicket Reservoir have been compared with the Low Environmental Destination licence settings. This demonstrated that abstractions exceed the latest Low Environmental Destination licence settings for Sources A, N, E, F, H, G, L, and P. However, at other sources, there would be spare licence, suggesting that at least some of the abstraction could be rebalanced.

6.11. For the next WRMP29 Portsmouth Water will be updating its High, Medium and Low Environmental Destinations to reflect the findings of the AMP8 WINEP programme. Once developed, Portsmouth Water will also improve the characterisation of supply scheme yield benefits under these different Environmental Destinations using the Pywr water resources model. This is expected to result in a revision to the characteristics and benefit of the Source O booster, improving the confidence that it is compliant with environmental legislation, i.e. the further assessments will determine which sources increase as a result of the option, enabling an understanding of whether there is potential to affect a European Site and further HRA required.

Appendices

Appendix A. European Designated Sites Information

The tables below provide the information about the European Sites relevant to the HRA of the preferred options.

Portsmouth Harbour SPA

Site Designation Status	**Portsmouth Harbour SPA**[25]
Location of European Site	OSNGR SU 617 034
Qualifying Features	ARTICLE 4.2 QUALIFICATION (79/409/EEC) Over winter the area regularly supports: • *Branta bernicla bernicla* (Western Siberia/Western Europe) 0.9% of the population 5 year peak mean 1991/92-1995/96; • *Calidris alpina alpina* (Northern Siberia/Europe/Western Africa) 1% of the population in Great Britain 5 year peak mean 1991/92-1995/96; • *Limosa limosa islandica* (Iceland - breeding) 0.4% of the population in Great Britain 5 year peak mean 1991/92-1995/96; • *Mergus serrator* (North-western/Central Europe) 0.9% of the population in Great Britain 5 year peak mean 1991/92-1995/96.
Vulnerabilities of the European Site	The site is vulnerable to: • Fishing and harvesting aquatic resources; • Pollution to groundwater (point sources and diffuse sources); • Changes in abiotic conditions; • Outdoor sports and leisure activities, recreational activities; • Changes to biotic conditions.
Conservation Objectives of the European Site	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; • 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.

Portsmouth Harbour Ramsar Site

Site Designation Status	**Portsmouth Harbour Ramsar site**[26]
Location of European Site	OSNGR SU 617 034
Qualifying Features	Ramsar criterion 3 The intertidal mudflat areas possess extensive beds of eelgrass *Zostera angustifolia* and *Zostera noltei* which support the grazing dark-bellied brent geese populations. The mud-snail *Hydrobia ulvae* is found at extremely high

25 https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK9011051&SiteName=portsmouth%20harbour&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

26 https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK11055&SiteName=portsmouth%20harbour&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

	densities, which helps to support the wading bird interest of the site. Common cord-grass *Spartina anglica* dominates large areas of the saltmarsh and there are also extensive areas of green algae Enteromorpha spp. and sea lettuce *Ulva lactuca*. More locally the saltmarsh is dominated by sea purslane *Halimione portulacoides* which gradates to more varied communities at the higher shore levels. The site also includes a number of saline lagoons hosting nationally important species. Ramsar criterion 6 – species/populations occurring at levels of international importance. Qualifying Species/populations (as identified at designation): Species with peak counts in winter: • Dark-bellied brent goose, (*Branta bernicla bernicla)*, 2105 individuals, representing an average of 2.1% of the GB population (5 year peak mean 1998/9-2002/3).
Vulnerabilities of the European Site	The site is vulnerable to: • Eutrophication; • Unspecified development, urban use; • Coastal engineering e.g. construction of sea defences for coastal protection.
Conservation Objectives of the European Site	Conservation objectives do not exist for Ramsar sites therefore in this case the conservation objectives for the Portsmouth Harbour SPA have been referenced.

Solent and Isle of Wight Lagoons SAC

Site Designation Status	**Solent and Isle of Wight Lagoons SAC**
Location of European Site	OSNGR SZ 458 931
Qualifying Features	Annex I habitats that are a primary reason for selection of this site: • 1150 Coastal lagoons.
Vulnerabilities of the European Site	The site is vulnerable to the following: • Human induced changes to hydraulic conditions; • Changes in abiotic conditions; • Interspecific floral relations; • Invasive non-native species; • Air pollution, air borne pollutants.
Conservation Objectives of the European Site	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; • 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.

Solent and Dorset Coast SPA

Site Designation Status	**Solent and Dorset Coast SPA**[27]
Location of European Site	Ordnance Survey National Grid Reference (OSNGR) SZ 431 897
Qualifying Features	ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: • *Sterna sandvicensis* - 4.01% of the GB breeding population (5 year mean 2010-2014, 441 pairs); • *Sterna hirundo* - 4.77% of the GB breeding population (5 year mean 2009-2014, 492 pairs); • *Sterna albifrons* - 3.31% of the GB breeding population (5 year mean 2009-2014, 63 pairs).
Vulnerabilities of the European Site	The vulnerabilities of the site are: • Military use and civil unrest; • Exploration and extraction of oil and gas; • Shipping lanes, ports and marine constructions; • Urbanised areas, human habitation; • Fishing and harvesting aquatic resources; • Outdoor sports and leisure activities, recreational activities; • Renewable abiotic energy use; • Discharges.
Conservation Objectives of the European Site	The objectives are to ensure that, subject to natural change, the integrity of the site is maintained or restored as appropriate, and that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring: • 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 populations of each of the qualifying features; • the distribution of qualifying features within the site.

Duncton to Bignor Escarpment SAC

Site Designation Status	Duncton to Bignor Escarpment SAC[28]
Location of European Site	OSNGR SU965137
Qualifying Features	Annex I habitats that are a primary reason for selection of this site: • 9130 *Asperulo-Fagetum* beech forests.
Vulnerabilities of the European Site	None listed on Natura 2000 – Standard Data Form Reference made to the Supplementary Advice on Conservation Objectives
Conservation Objectives of the European Site	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;

[27] https://designatedsites.naturalengland.org.uk/SiteList.aspx?siteName=solent%20and%20dorset&countyCode=&responsiblePerson=&DesignationType=All

[28] https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK0030138&SiteName=duncton&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

	• 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 the qualifying natural habitats rely.

Rook Clift SAC

Site Designation Status	**Rook Clift SAC**[29]
Location of European Site	OSNGR SU820182
Qualifying Features	Annex I habitats that are a primary reason for selection of this site • 9180 Tilio-Acerion forests of slopes, screes and ravines * Priority feature.
Vulnerabilities of the European Site	The site is vulnerable to the following: • Forest and Plantation management & use; • Problematic native species; • Unknown threat or pressure.
Conservation Objectives of the European Site	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; • 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.

Singleton and Cocking Tunnels SAC

Site Designation Status	**Singleton and Cocking Tunnels SAC**[30]
Location of European Site	OSNGR SU872144
Qualifying Features	Annex II species present as a qualifying feature, but not a primary reason for site selection: • 1308 Barbastelle (Barbastella barbastellus); • 1323 Bechstein's bat (Myotis bechsteinii).
Vulnerabilities of the European Site	The site is vulnerable to the following: • Modification of cultivation practices; • Changes in biotic conditions; • Other ecosystem modifications; • Outdoor sports and leisure activities, recreational activities.
Conservation Objectives of the European Site	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: • The extent and distribution of the habitats of qualifying species; • The structure and function of the habitats of qualifying species;

[29] https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK0030058&SiteName=rook%20clift&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

[30] https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK0030337&SiteName=singleton&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

	• The supporting processes on which the habitats of qualifying species rely; • The populations of qualifying species, and, • The distribution of qualifying species within the site.

Pagham Harbour SPA

Site Designation Status	**Pagham Harbour SPA**[31]
Location of European Site	OSNGR SZ 872 968
Qualifying Features	ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: • *Sterna albifrons* (Eastern Atlantic - breeding) 0.3% of the GB breeding population 5 year mean, 1992-1996; • *Sterna hirundo* (Northern/Eastern Europe - breeding) % of the GB breeding population Count, as at 1996. Over winter the area regularly supports: • *Philomachus pugnax* (Western Africa - wintering) 1.4% of the GB population 5 year mean, 1995-1999. ARTICLE 4.2 QUALIFICATION (79/409/EEC) Over winter the area regularly supports: • *Branta bernicla bernicla* (Western Siberia/Western Europe) 0.6% of the population 5 year peak mean 1991/92-1995/9.
Vulnerabilities of the European Site	The site is vulnerable to: • Outdoor sports and leisure activities, recreational activities • Human induced changes in hydraulic conditions • Pollution to groundwater (point sources and diffuse sources) • Fishing and harvesting aquatic resources
Conservation Objectives of the European Site	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; • 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.

Pagham Harbour Ramsar site

Site Designation Status	**Pagham Harbour Ramsar site**[32]
Location of European Site	OSNGR SZ 872 968
Qualifying Features	Ramsar criterion 6 – species/ populations occurring at levels of international importance.

[31] https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK9012041&SiteName=pagham&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

[32] https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK11052&SiteName=pagham&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

	Qualifying species/populations (as identified at designation): Species with peak counts in winter: • Dark-bellied brent goose, *Branta bernicla bernicla,* 2512 individuals, representing an average of 1.1% of the population (5 year peak mean 1998/9-2002/3).
Vulnerabilities of the European Site	N/A
Conservation Objectives of the European Site	Conservation objectives do not exist for Ramsar sites therefore in this case the conservation objectives for the Pagham Harbour SPA have been referenced.

Solent Maritime SAC

Site Designation Status	**Solent Maritime SAC**[33]
Location of European Site	OSNGR SU756003
Qualifying Features	Annex I habitats that are a primary reason for selection of this site: • 1130 Estuaries; • 1320 Spartina swards (*Spartinion maritima*); • 1330 Atlantic salt meadows (*Glauco-Puccinellietalia martitmae*). 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; • 1140 Mudflats and sandflats not covered by seawater at low tide; • 1150 Coastal lagoons * Priority feature; • 1210 Annual vegetation of drift lines; • 1220 Perennial vegetation of stony banks; • 1310 Salicornia and other annuals colonizing mud and sand; • 2120 ""Shifting dunes along the shoreline with *Ammophila arenaria* (""white dunes"")". Annex II species present as a qualifying feature, but not a primary reason for site selection: • 1016 Desmoulin's whorl snail (*Vertigo moulinsiana).*
Vulnerabilities of the European Site	The site is vulnerable to the following: • Pollution to groundwater (point sources and diffuse sources); • Outdoor sports and leisure activities, recreational activities; • Changes in biotic conditions; • Fishing and harvesting aquatic resources; • Changes in abiotic conditions.
Conservation Objectives of the European Site	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; • The extent and distribution of qualifying natural habitats and habitats of qualifying species; • The structure and function (including typical species) of qualifying natural habitats;

[33] https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK0030059&SiteName=SOLENT%20MARITIME&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

	• 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.

Kingley Vale SAC

Site Designation Status	**Kingley Vale SAC**[34]
Location of European Site	OSNGR SU824110
Qualifying Features	Annex I habitats that are a primary reason for selection of this site: • 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: • 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites).
Vulnerabilities of the European Site	The site is vulnerable to the following: • Agriculture activities not referred to above; • Grazing; • Problematic native species; • Air pollution, air-borne pollutants.
Conservation Objectives of the European Site	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; • 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.

Arun Valley SAC

Site Designation Status	**Arun Valley SAC**[35]
Location of European Site	OSNGR TQ035143
Qualifying Features	Annex II species that are a primary reason for selection of this site: • 4056 Ramshorn snail (*Anisus vorticulus).*
Vulnerabilities of the European Site	The site is vulnerable to the following: • Human induced changes in hydraulic conditions.
Conservation Objectives of the European Site	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; • The extent and distribution of the habitats of qualifying species; • The structure and function of the habitats of qualifying species;

[34] https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK0012767&SiteName=KINGLEY&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

[35] https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK0030366&SiteName=ARUN&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

	• The supporting processes on which the habitats of qualifying species rely; • The populations of qualifying species, and, • The distribution of qualifying species within the site.

Arun Valley SPA

Site Designation Status	**Arun Valley SPA**[36]
Location of European Site	OSNGR TQ034142
Qualifying Features	ARTICLE 4.1 QUALIFICATION (79/409/EEC) Over winter the area regularly supports: • *Cygnus columbianus bewickii* (Western Siberia/North-eastern & North-western Europe) 1.6% of the population in Great Britain 5 year peak mean for 1992/93 to 1996/7 ARTICLE 4.2 QUALIFICATION (79/409/EEC) An internationally important assemblage of birds: Over winter the area regularly supports 27241 waterfowl (5 year peak mean 1991/92-1995/96) Including: *Cygnus columbianus bewickii*.
Vulnerabilities of the European Site	The site is vulnerable to the following: • Pollution to groundwater; • Human induced changes in hydraulic conditions.
Conservation Objectives of the European Site	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; • 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.

Arun Valley Ramsar site

Site Designation Status	**Arun Valley Ramsar site**[37]
Location of European Site	OSNGR TQ039152
Qualifying Features	Ramsar criterion 2 The site holds seven wetland invertebrate species listed in the British Red Data Book as threatened. One of these, *Pseudamnicola confusa*, is considered to be endangered. The site also supports four nationally rare and four nationally scarce plant species. Ramsar criterion 3 In addition to the Red Data Book invertebrate and plant species, the ditches intersecting the site have a particularly diverse and rich flora. All five British duckweed Lemna species, all five water-cress Rorippa species, and all three

[36] https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK9020281&SiteName=ARUN&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

[37] https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK11004&SiteName=ARUN&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

	British water milfoils (Myriophyllum species), all but one of the seven British water dropworts (Oenanthe species), and two-thirds of the British pondweeds (Potamogeton species) can be found on site. Ramsar criterion 5 Assemblages of international importance: Species with peak counts in winter: 13774 waterfowl (5 year peak mean 1998/99-2002/2003)
Vulnerabilities of the European Site	The site is vulnerable to: • Water extraction (not covered elsewhere) - water abstraction for Public Water Supply.
Conservation Objectives of the European Site	Conservation objectives do not exist for Ramsar sites therefore in this case the conservation objectives for the Pagham Harbour SPA have been referenced.

Chichester and Langstone Harbours SPA

Site Designation Status	**Chichester and Langstone Harbours SPA**[38]
Location of European Site	OSNGR SU697024
Qualifying Features	ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: • *Sterna albifrons* (Eastern Atlantic - breeding) 4.2% of the GB breeding population 5 year mean, 1992-1996; • *Sterna hirundo* (Northern/Eastern Europe - breeding) 0.3% of the GB breeding population 5 year mean, 1992-1996; • *Sterna sandvicensis* (Western Europe/Western Africa) 0.2% of the GB breeding population 5 year mean, 1993-1997. Over winter the area regularly supports: • *Limosa lapponica (*Western Palearctic - wintering) 3.2% of the GB population 5 year peak mean 1991/92-1995/96. ARTICLE 4.2 QUALIFICATION (79/409/EEC) Over winter the area regularly supports: • *Anas acuta* (North-western Europe) 1.2% of the population in Great Britain 5 year peak mean 1991/92-1995/96; • *Anas clypeata* (North-western/Central Europe) 1% of the population in Great Britain 5 year peak mean 1991/92-1995/96; • *Anas crecca* (North-western Europe) 0.5% of the population 5 year peak mean 1991/92-1995/96; • *Anas penelope* (Western Siberia/North-western/North-eastern Europe) 0.7% of the population in Great Britain 5 year peak mean 1991/92-1995/96; • *Arenaria interpres* (Western Palearctic - wintering) 0.7% of the population in Great Britain 5 year peak mean 1991/92-1995/96; • *Branta bernicla bernicla* (Western Siberia/Western Europe) 5.7% of the population 5 year peak mean 1991/92-1995/96; • *Calidris alba* (Eastern Atlantic/Western & Southern Africa - wintering) 0.2% of the population 5 year peak mean 1991/92-1995/96;

38 https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK9011011&SiteName=CHICHESTER&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

	• *Calidris alpina alpina* (Northern Siberia/Europe/Western Africa) 3.2% of the population 5 year peak mean 1991/92-1995/96; • *Charadrius hiaticula* (Europe/Northern Africa - wintering) 3% of the population in Great Britain 5 year peak mean 1991/92-1995/96; • *Mergus serrator* (North-western/Central Europe) 3% of the population in Great Britain 5 year peak mean 1991/92-1995/96; • *Numenius arquata* (Europe – breeding) 1.6% of the population in Great Britain 5 year peak mean 1991/92-1995/96; • *Pluvialis squatarola* (Eastern Atlantic - wintering) 2.3% of the population 5 year peak mean 1991/92-1995/96; • *Tadorna tadorna* (North-western Europe) 3.3% of the population in Great Britain 5 year peak mean 1991/92-1995/96; • *Tringa totanus* (Eastern Atlantic - wintering) 1% of the population 5 year peak mean 1991/92-1995/96. ARTICLE 4.2 QUALIFICATION (79/409/EEC): AN INTERNATIONALLY IMPORTANT ASSEMBLAGE OF BIRDS Over winter the area regularly supports: 93230 waterfowl (5 year peak mean 1991/92-1995/96) Including: *Branta bernicla bernicla, Tadorna tadorna, Anas penelop , Anas crecca, Anas acuta, Anas clypeata, Mergus serrator, Charadrius hiaticula, Pluvialis squatarola, Calidris alba, Calidris alpina alpina , Limosa lapponica, Numenius arquata, Tringa totanus, Arenaria interpres*
Vulnerabilities of the European Site	The site is vulnerable to the following: • Changes in biotic conditions; • Pollution to groundwater (point sources and diffuse sources); • Changes in abiotic conditions; • Fishing and harvesting aquatic resources; • Outdoor sports and leisure activities, recreational activities.
Conservation Objectives of the European Site	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; • 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.

Chichester and Langstone Harbours Ramsar site

Site Designation Status	**Chichester and Langstone Harbours Ramsar site**[39]
Location of European Site	OSNGR SU697024
Qualifying Features	Ramsar Criterion 1 Two large estuarine basins linked by the channel which divides Hayling Island from the main Hampshire coastline. The site includes intertidal mudflats, saltmarsh, sand and shingle spits and sand dunes. Ramsar Criterion 5

[39] https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK11013&SiteName=CHICHESTER&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

	Assemblages of international importance: Species with peak counts in winter: • 76480 waterfowl (5 year peak mean 1998/99-2002/2003). Ramsar Criterion 6 Species/populations occurring at levels of international importance. Qualifying Species/populations (as identified at designation): Species with peak counts in spring/autumn: • Ringed plover, *Charadrius hiaticula*, Europe/Northwest Africa 853 individuals, representing an average of 1.1% of the population (5 year peak mean 1998/9-2002/3); • Black-tailed godwit, *Limosa limosa islandica*, Iceland/W Europe 906 individuals, representing an average of 2.5% of the population (5 year peak mean 1998/9-2002/3); • Common redshank, *Tringa totanus totanus*, 2577 individuals, representing an average of 1% of the population (5 year peak mean 1998/9-2002/3) . Species with peak counts in winter: • Dark-bellied brent goose, *Branta bernicla bernicla*, 12987 individuals, representing an average of 6% of the population (5 year peak mean 1998/9-2002/3); • Common shelduck, *Tadorna tadorna*, NW Europe 1468 individuals, representing an average of 1.8% of the GB population (5 year peak mean 1998/9-2002/3); • Grey plover, *Pluvialis squatarola*, E Atlantic/W Africa -wintering 3043 individuals, representing an average of 1.2% of the population (5 year peak mean 1998/9-2002/3); • Dunlin, *Calidris alpina alpina*, W Siberia/W Europe 33436 individuals, representing an average of 2.5% of the population (5 year peak mean 1998/9-2002/3).
Vulnerabilities of the European Site	The site is vulnerable to the following: • Erosion; • Eutrophication; • Pollution – domestic sewage.
Conservation Objectives of the European Site	Conservation objectives do not exist for Ramsar sites therefore in this case the conservation objectives for the Chichester and Langstone Harbours SPA have been referenced.

The Mens SAC

Site Designation Status	**The Mens SAC**[40]
Location of European Site	OSNGR TQ024236
Qualifying Features	Annex I habitats that are a primary reason for selection of this site: • 9120 Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrublayer (*Quercion robori-petraeae* or *Ilici-Fagenion*). Annex II species present as a qualifying feature, but not a primary reason for site selection

40 https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK0012716&SiteName=MENS%20SAC&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

	• 1308 Barbastelle (Barbastella barbastellus).
Vulnerabilities of the European Site	The site is vulnerable to the following: • Forest and plantation management & use; • Other ecosystem modifications • Changes in biotic conditions; • Modification of cultivation practices.
Conservation Objectives of the European Site	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; • 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.

Ebernoe Common SAC

Site Designation Status	**Ebernoe Common SAC**[41]
Location of European Site	OSNGR SU975271
Qualifying Features	Annex I habitats that are a primary reason for selection of this site • 9120 Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrublayer (*Quercion robori-petraeae* or *Ilici-Fagenion*). Annex II species that are a primary reason for selection of this site • 1308 Barbastelle (Barbastella barbastellus); • 1323 Bechstein's bat (Myotis bechsteinii).
Vulnerabilities of the European Site	The site is vulnerable to the following: • Human induced changes in hydraulic conditions; • Other ecosystem modifications; • Changes in biotic conditions; • Modification of cultivation practices; • Forest and plantation management and use.
Conservation Objectives of the European Site	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; • 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;

41 https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK0012715&SiteName=ebernoe&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

- 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.

Solent and Southampton Water SPA

Site Designation Status	**Solent and Southampton Water SPA**[42]
Location of European Site	OSNGR SZ452975
Qualifying Features	ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: • *Larus melanocephalus* 15.4% of the GB breeding population 5 year peak mean, 1994-1998 • *Sterna albifrons* (Eastern Atlantic - breeding) 2% of the GB breeding population 5 year peak mean, 1993-1997 • *Sterna dougallii* (Europe - breeding) 3.1% of the GB breeding population 5 year peak mean, 1993-1997 • *Sterna hirundo (Northern/Eastern Europe - breeding) 2.2% of the GB breeding population 5 year peak mean, 1993-1997* • *Sterna sandvicensis (Western Europe/Western Africa) 1.7% of the GB breeding population 5 year peak mean, 1993-1997* ARTICLE 4.2 QUALIFICATION (79/409/EEC) Over winter the area regularly supports: • *Anas crecca* (North-western Europe) 1.1% of the population 5 year peak mean, 1992/3-1996/7 • *Branta bernicla bernicla* (Western Siberia/Western Europe) 2.5% of the population 5 year peak mean, 1992/3-1996/7 • *Charadrius hiaticula* (Europe/Northern Africa - wintering) 1.2% of the population 5 year peak mean, 1992/3-1996/7 • *Limosa limosa islandica* (Iceland - breeding) 1.7% of the population 5 year peak mean, 1992/3-1996/7 ARTICLE 4.2 QUALIFICATION (79/409/EEC): AN INTERNATIONALLY IMPORTANT ASSEMBLAGE OF BIRDS Over winter the area regularly supports: 51361 waterfowl (5 year peak mean 1991/92-1995/96) Including: *Branta bernicla bernicla, Anas crecca, Charadrius hiaticula, Limosa limosa islandica*
Vulnerabilities of the European Site	The site is vulnerable to the following: • Outdoor sports and leisure activities, recreational activities; • Changes in abiotic conditions; • Changes in biotic conditions; • Fishing and harvesting aquatic resources; • Pollution to groundwater (point sources and diffuse sources).

42 https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK9011061&SiteName=solent%20and%20southampton%20water&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

Conservation Objectives of the European Site	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; • 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.

Solent and Southampton Water Ramsar site

Site Designation Status	**Solent and Southampton Water Ramsar site**[43]
Location of European Site	OSNGR SZ454977
Qualifying Features	Ramsar Criterion 1 The site is one of the few major sheltered channels between a substantial island and mainland in European waters, exhibiting an unusual strong double tidal flow and has long periods of slack water at high and low tide. It includes many wetland habitats characteristic of the biogeographic region: saline lagoons, saltmarshes, estuaries, intertidal flats, shallow coastal waters, grazing marshes, reedbeds, coastal woodland and rocky boulder reefs. Ramsar Criterion 2 The site supports an important assemblage of rare plants and invertebrates. At least 33 British Red Data Book invertebrates and at least eight British Red Data Book plants are represented on site. Ramsar Criterion 5 Assemblages of international importance: Species with peak counts in winter: • 51343 waterfowl (5 year peak mean 1998/99-2002/2003). Ramsar Criterion 6 Species/populations occurring at levels of international importance. Qualifying Species/populations (as identified at designation): Species with peak counts in spring/autumn: • Ringed plover, *Charadrius hiaticula*, Europe/Northwest Africa 397 individuals, representing an average of 1.2% of the population (5 year peak mean 1998/9-2002/3); Species with peak counts in winter: • Dark-bellied brent goose, *Branta bernicla bernicla*, 6456 individuals, representing an average of 3% of the population (5 year peak mean 1998/9-2002/3); • Eurasian teal, *Anas crecca*, NW Europe 5514 individuals, representing an average of 1.3% of the population (5 year peak mean 1998/9-2002/3); • Black-tailed godwit, *Limosa limosa islandica*, Iceland/W Europe 1240 individuals, representing an average of 3.5% of the population (5 year peak mean 1998/9-2002/3).

[43] https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK11063&SiteName=solent%20and%20southampton%20water&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

Vulnerabilities of the European Site	The site is vulnerable to the following: • Erosion.
Conservation Objectives of the European Site	Conservation objectives do not exist for Ramsar sites therefore in this case the conservation objectives for the Solent and Southampton Water SPA have been referenced.

Butser Hill SAC

Site Designation Status	**Butser Hill SAC**[44]
Location of European Site	OSNGR SU714199
Qualifying Features	Annex I habitats that are a primary reason for selection of this site: • 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.
Vulnerabilities of the European Site	The site is vulnerable to the following: • Biocenotic evolution, succession • Grazing.
Conservation Objectives of the European Site	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; • 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.

44 https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK0030103&SiteName=Butser%20Hill&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

East Hampshire Hangers SAC

Site Designation Status	**East Hampshire Hangers SAC**[45]
Location of European Site	OSNGR SU742314
Qualifying Features	Annex I habitats that are a primary reason for selection of this site: • 9130 Asperulo-Fagetum beech forests; • 9180 Tilio-Acerion forests of slopes, screes and ravines * Priority feature. Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site • 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 II species present as a qualifying feature, but not a primary reason for site selection • S1654 Early gentian, *Gentianella anglica*
Vulnerabilities of the European Site	The site is vulnerable to the following: • Invasive non-native species; • Forest and plantation management & use; • Air pollution, air-borne pollutants.
Conservation Objectives of the European Site	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; • 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.

River Itchen SAC

Site Designation Status	**River Itchen SAC details**[46]
Location of European Site	OSNGR SU467174
Qualifying Features	Annex I habitats that are a primary reason for selection of this site: • 3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation. Annex II species that are a primary reason for selection of this site: • 1044 Southern damselfly *Coenagrion mercuriale* • 1163 Bullhead *Cottus gobio*

45 https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK0012723&SiteName=East%20hampshire%20hangers&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

46 https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK0012599&SiteName=River%20Itchen&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

	Annex II species present as a qualifying feature, but not a primry reason for site selection • 1092 White-clawed (or Atlantic stream) crayfish *Austropotamobius pallipes* • 1096 Brook lamprey Lampetra planeri • 1106 Atlantic salmon Salmo salar • 1355 Otter *Lutra lutra*
Vulnerabilities of the European Site	The site is vulnerable to the following: • Grazing; • Pollution to groundwater (point sources and diffuse sources); • Human induced changes in hydraulic conditions.
Conservation Objectives of the European Site	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; • 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.

River Meon

Site Designation Status	**River Meon – treated as pSAC for the purpose of this assessment. River Itchen SAC details[47] used as a proxy**
Location of European Site	OSNGR SU64042393 (the boundary was taken to be the river channel from West Meon to the coast)
Qualifying Features	Annex I habitats that are a primary reason for selection of this site: • 3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation. Annex II species that are a primary reason for selection of this site: • 1044 Southern damselfly *Coenagrion mercuriale* • 1163 Bullhead *Cottus gobio* Annex II species present as a qualifying feature, but not a primry reason for site selection • 1092 White-clawed (or Atlantic stream) crayfish *Austropotamobius pallipes* • 1096 Brook lamprey Lampetra planeri • 1106 Atlantic salmon Salmo salar • 1355 Otter *Lutra lutra*
Vulnerabilities of the European Site	The site is vulnerable to the following: • Grazing;

47 https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK0012599&SiteName=River%20Itchen&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

	• Pollution to groundwater (point sources and diffuse sources); • Human induced changes in hydraulic conditions.
Conservation Objectives of the European Site	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; • 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.

Appendix B. HRA Stage 1 Screening Review

Table B-1. HRA Stage 1 Screening Review for Drought Permit: Source S (PRT_PRT_RE-DRP_ALL_ALL_Source S drought)

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
Duncton to Bignor Escarpment SAC (approximately 4.7 km north)	Annex I habitats that are a primary reason for selection of this site: • 9130 *Asperulo-Fagetum* beech forests.	Maintain and restore the extent and distribution of qualifying natural habitats. Maintain and restore the structure and function (including typical species) of qualifying natural habitats. Maintain and restore the supporting processes on which the qualifying natural habitats rely.	No land take or works will be required within the SAC. Existing infrastructure will be used; therefore, no construction phase is required. Both the SAC and the option are within the Chichester Chalk groundwater body; however, it is considered that given the distance and the extreme terms under which the option would operate, the SAC is unlikely to be affected by the option. In addition, there is no source of pollution as the option only proposes increased abstraction.	No effect	No
Arun Valley SPA (approximately 8.4 km northeast)	ARTICLE 4.1 QUALIFICATION (79/409/EEC) • Bewick's Swan (*Cygnus columbianus bewickii)* <u>Other important species</u> ARTICLE 4.2 QUALIFICATION (79/409/EEC) An internationally important assemblage of birds: Over winter the area regularly supports 27241 waterfowl (5 year peak mean 1991/92-1995/96) Including: *Cygnus columbianus bewickii*	Maintain or restore the extent and distribution of the habitats of the qualifying features Maintain or restore the structure and function of the habitats of the qualifying features Maintain or restores the supporting processes on which the habitats of the qualifying features rely Maintain or restore the population of each of the qualifying features.	No land take or works will be required within the SPA. Existing infrastructure will be used; therefore, no construction phase is required. There is no hydrological connectivity from the option to the SPA and the option will not impact any functionally linked land. However, the SPA is vulnerable to 'human induced hydraulic change' and so this option has been taken forward to AA.	Effects Uncertain	Yes

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
		Maintain or restore the distribution of the qualifying features within the site			
Arun Valley SAC (approximately 8.4 km northeast)	Annex II species that are a primary reason for selection of this site: • 4056 Ramshorn snail (*Anisus vorticulus)*	Maintain or restore the extent and distribution of the habitats of qualifying species.	There are no direct impact pathways by which the proposed option could affect the features of the SAC. However, the SAC is vulnerable to 'human induced hydraulic change' and so this option has been taken forward to AA.	Effects uncertain	Yes
		Maintain or restore the structure and function of the habitats of qualifying species.			
		Maintain or restore the supporting processes on which the habitats of qualifying species rely.			
		Maintain or restore the populations of qualifying species.			
		Maintain or restore the distribution of qualifying species within the site.			
Arun Valley Ramsar site (approximately 8.4 km northeast)	<u>Ramsar criterion 2</u> The site holds seven wetland invertebrate species listed in the British Red Data Book as threatened. One of these,	There are no conservation objectives for the Ramsar site, therefore the objectives of the SAC (above) have been used in this assessment.	There are no direct impact pathways by which the proposed option could affect the features of the Ramsar site and the option will not impact any functionally linked land.	Effects Uncertain	Yes

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
	Pseudamnicola confusa, is considered to be endangered. The site also supports four nationally rare and four nationally scarce plant species. Ramsar criterion 3 The ditches intersecting the site have a particularly diverse and rich flora. All five British duckweed *Lemna* species, all five water-cress *Rorippa* species, and all three British water milfoils (*Myriophyllum* species), all but one of the seven British water dropworts (*Oenanthe* species), and two-thirds of the British pondweeds (*Potamogeton* species) can be found on site. Ramsar criterion 5 Assemblages of international importance: Species with peak counts in winter: • 13774 waterfowl (5 year peak mean 1998/99-2002/2003) Species/populations identified subsequent to designation for possible future consideration under criterion 6.		However, the Ramsar site is vulnerable to 'water extraction' and so this option has been taken forward to AA.		

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
	Species with peak counts in winter: Northern pintail, *Anas acuta*, NW Europe 641 individuals, representing an average of 1% of the population (5 year peak mean 1998/9-2002/3)				
Solent and Dorset Coast SPA (approximately 8.9 km south)	ARTICLE 4.1 QUALIFICATION (79/409/EEC) • During the breeding season the area regularly supports: *Sterna sandvicensis* - 4.01% of the GB breeding population (5 year mean 2010-2014, 441 pairs); • *Sterna hirundo* - 4.77% of the GB breeding population (5 year mean 2009-2014, 492 pairs); • *Sterna albifrons* - 3.31% of the GB breeding population	Maintain or restore the extent and distribution of the habitats of the qualifying features Maintain or restore the structure and function of the habitats of the qualifying features Maintain or restores the supporting processes on which the habitats of the qualifying features rely Maintain or restore the population of each of the qualifying features. Maintain or restore the distribution of the qualifying features within the site.	There are no feasible impact pathways by which the option could impact the SPA. The option will not impact any functionally linked land.	No effect	No

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
	(5 year mean 2009-2014, 63 pairs).				
Singleton and Cocking Tunnels SAC (approximately 9.8 km northwest)	Annex II species present as a qualifying feature, but not a primary reason for site selection: • 1308 Barbastelle (*Barbastella barbastellus);* • 1323 Bechstein's bat (*Myotis bechsteinii).*	Maintain or restore the extent and distribution of the habitats of qualifying species. Maintain or restore the structure and function of the habitats of qualifying species. Maintain or restore the supporting processes on which the habitats of qualifying species rely. Maintain or restore the populations of qualifying species. Maintain or restore the distribution of qualifying species within the site.	The SAC is located over 9 km from the option. According to the Sussex Bat Special Area of Conservation Planning and Landscape Scale Enhancement Protocol, the option is within the 'wider conservation area' (12 km)[48] with respect to impacts on bats. The wider conservation area is the full extent of the range of foraging areas required by the bats, and significant impacts or severance to flightlines are considered here. However, as existing infrastructure will be used, no construction is required and there is no scope for the option to have any effect on bats.	No effect	No
Kingley Vale SAC (approximately 13 km west)	Annex I habitats that are a primary reason for selection of this site: • 91J0 *Taxus baccata* woods of the British Isles * Priority feature. Annex I habitats present as a qualifying feature, but not a	Maintain or restore the extent and distribution of qualifying natural habitats and habitats. Maintain or restore the structure and function (including typical species) of qualifying natural habitats.	There are no feasible impact pathways whereby the option could impact the habitat features of the SAC.	No effect	No

[48] Sussex Bat Special Area of Conservation Planning and Landscape Scale Enhancement Protocol - https://www.southdowns.gov.uk/wp-content/uploads/2018/04/TLL-15-Draft-Sussex-Bat-SAC-Protocol.pdf

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
	primary reason for selection of this site: • 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites)	The supporting processes on which qualifying natural habitats rely.			
The Mens SAC (approximately 14.6 km northeast)	Annex I habitats that are a primary reason for selection of this site: • 9120 Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrublayer (*Quercion robori-petraeae* or *Ilici-Fagenion*). Annex II species present as a qualifying feature, but not a primary reason for site selection • 1308 Barbastelle (*Barbastella barbastellus).*	Maintain or restore the extent and distribution of qualifying natural habitats and habitats of qualifying species. Maintain or restore the structure and function (including typical species) of qualifying natural habitats. Maintain or restore the structure and function of the habitats of qualifying species. Maintain or restore the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely. Maintain or restore the populations of qualifying species.	The SAC is located over 10 km from the option. According to the Sussex Bat Special Area of Conservation Planning and Landscape Scale Enhancement Protocol, the option is outside of the 'wider conservation area' (12 km)[49] with respect to impacts on bats. The wider conservation area is the full extent of the range of foraging areas required by the bats, and significant impacts or severance to flightlines are considered here. However, as existing infrastructure will be used, no construction is required and there is no scope for the option to have any effect on bats.	No effect	No

[49] Sussex Bat Special Area of Conservation Planning and Landscape Scale Enhancement Protocol - https://www.southdowns.gov.uk/wp-content/uploads/2018/04/TLL-15-Draft-Sussex-Bat-SAC-Protocol.pdf

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
		Maintain or restore the distribution or qualifying species within the site.			
Ebernoe Common SAC (approximately 16.6 km north)	Annex I habitats that are a primary reason for selection of this site • 9120 Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrublayer (*Quercion robori-petraeae* or *Ilici-Fagenion*). Annex II species that are a primary reason for selection of this site • 1308 Barbastelle (*Barbastella barbastellus);* • 1323 Bechsteins bat (*Myotis bechsteinii).*	Maintain or restore the extent and distribution of qualifying natural habitats and habitats of qualifying species. Maintain or restore the structure and function (including typical species) of qualifying natural habitats. Maintain or restore the structure and function of the habitats of qualifying species. Maintain or restore the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely. Maintain or restore the populations of qualifying species. Maintain or restore the distribution of qualifying species within the site.	The SAC is located over 10 km from the option. According to the Sussex Bat Special Area of Conservation Planning and Landscape Scale Enhancement Protocol, the option is outside of the 'wider conservation area' (12 km)[50] with respect to impacts on bats. The wider conservation area is the full extent of the range of foraging areas required by the bats, and significant impacts or severance to flightlines are considered here. However, as existing infrastructure will be used, no construction is required and there is no scope for the option to have any effect on bats.	No effect	No

[50] Sussex Bat Special Area of Conservation Planning and Landscape Scale Enhancement Protocol - https://www.southdowns.gov.uk/wp-content/uploads/2018/04/TLL-15-Draft-Sussex-Bat-SAC-Protocol.pdf

Table B-2. HRA Stage 1 Screening Review for Upgrade Source O Booster to 25 Ml/d (PRT_PRT_HI-ROC_ALL_ALL_source o booster)

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
Kingley Vale SAC (approximately 2.4 km north)	Annex I habitats that are a primary reason for selection of this site: • 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: • 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (*important orchid sites).	Maintain or restore the extent and distribution of qualifying natural habitats and habitats. Maintain or restore the structure and function (including typical species) of qualifying natural habitats. The supporting processes on which qualifying natural habitats rely.	No direct impacts on the SAC are anticipated as a result of the option. There are no surface water hydrological links between the SAC and the option. Both the SAC and the option are within the Chichester Chalk groundwater body; however, the option will not result in changes to groundwater. The potential for pollution to reach the SAC via groundwater during construction is considered to be negligible.	No LSE	No
Solent Maritime SAC (approximately 3 km south)	Annex I habitats that are a primary reason for selection of this site: • 1130 Estuaries; • 1320 Spartina swards (*Spartinion maritima*); • 1330 Atlantic salt meadows (*Glauco-Puccinellietalia martitmae*). Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:	Maintain or restore the extent and distribution of qualifying natural habitats and habitats of qualifying species. Maintain or restore the structure and function (including typical species) of qualifying natural habitats. Maintain or restore the structure and function of the habitats of qualifying species.	The option and the SAC are hydrologically connected via Bosham Stream. The option aims to provide upgraded pumping capacity to allow the expansion of distribution capacity. Some construction works may be required in order to replace existing pipes; therefore, there is potential for pollution to impact the designated site depending on the nature and extent of the works.	LSE	Yes

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
	• 1110 Sandbanks which are slightly covered by sea water all the time; • 1140 Mudflats and sandflats not covered by seawater at low tide; • 1150 Coastal lagoons * Priority feature; • 1210 Annual vegetation of drift lines; • 1220 Perennial vegetation of stony banks; • 1310 Salicornia and other annuals colonizing mud and sand; • 2120 "Shifting dunes along the shoreline with *Ammophila arenaria* (""white dunes"")". Annex II species present as a qualifying feature, but not a primary reason for site selection: • 1016 Desmoulin's whorl snail (*Vertigo moulinsiana).*	Maintain or restore the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely. Maintain or restore the populations of qualifying species. Maintain or restore the distribution of qualifying species within the site.			
Chichester and Langstone Harbours SPA (approximately 3 km south)	ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: • *Sterna albifrons;* • *Sterna hirundo;*	Maintain or restore the extent and distribution of the habitats of the qualifying features Maintain or restore the structure and function of the habitats of the qualifying features	The option and the SPA are hydrologically connected via Bosham Stream. The option aims to provide upgraded pumping capacity to allow the expansion of distribution capacity. Some construction works may be required in order to replace existing pipes, therefore, there is the potential for pollution to	LSE	Yes

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
	• *Sterna sandvicensis*. Over winter the area regularly supports: • *Limosa lapponica*. ARTICLE 4.2 QUALIFICATION (79/409/EEC) Over winter the area regularly supports: • *Anas acuta*; • *Anas clypeata*; • *Anas crecca;* • *Anas penelope;* • *Arenaria interpres;* • *Branta bernicla bernicla;* • *Calidris alba*; • *Calidris alpina alpina*; • *Charadrius hiaticula;* • *Mergus serrator;* • *Numenius arquata;* • *Pluvialis squatarola;* • *Tadorna tadorna;* • *Tringa tetanus.* ARTICLE 4.2 QUALIFICATION (79/409/EEC): AN INTERNATIONALLY IMPORTANT ASSEMBLAGE OF BIRDS	Maintain or restore the supporting processes on which the habitats of the qualifying features rely Maintain or restore the population of each of the qualifying features Maintain or restore the distribution of the qualifying features within the site.	impact the designated site depending on the nature and extent of the works. The mobile features of the European Site will utilise land outside of the SPA. The location of the works is not within a foraging area for waders or brent geese as detailed in the Solent Waders and Brent Goose Strategy[51]. Therefore, it is considered there will be no loss of functionally linked land or disturbance of qualifying bird species using such land as a result of the option.		

[51] https://solentwbgs.wordpress.com/page-2/

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
	Over winter the area regularly supports: 93230 waterfowl (5 year peak mean 1991/92-1995/96) Including: *Branta bernicla bernicla, Tadorna tadorna, Anas penelope, Anas crecca, Anas acuta, Anas clypeata, Mergus serrator, Charadrius hiaticula, Pluvialis squatarola, Calidris alba, Calidris alpina alpina, Limosa lapponica, Numenius arquata, Tringa totanus, Arenaria interpres.* See Appendix A for full details.				
Chichester and Langstone Harbours Ramsar (approximately 3 km south)	Ramsar Criterion 1 Two large estuarine basins linked by the channel which divides Hayling Island from the main Hampshire coastline. The site includes intertidal mudflats, saltmarsh, sand and shingle spits and sand dunes. Ramsar Criterion 5 Assemblages of international importance: Species with peak counts in winter: • 76480 waterfowl (5 year peak mean 1998/99-2002/2003). Ramsar Criterion 6	There are no objectives for the Ramsar site, therefore the objectives for the SPA (above) have been applied.	The option and the Ramsar site are hydrologically connected via Bosham Stream. The option aims to provide upgraded pumping capacity to allow the expansion of distribution capacity. Some construction works may be required in order to replace existing pipes, therefore there is the potential for pollution to impact the designated site depending on the nature and extent of the works. The mobile features of the European Site will utilise land outside of the SPA. The location of the works is not within a foraging area for waders or brent geese as detailed in the Solent Waders and Brent Goose Strategy[52]. Therefore, it is considered there will be no loss of functionally linked land or disturbance of qualifying bird species using such land as a result of the option.	LSE	Yes

[52] https://solentwbgs.wordpress.com/page-2/

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
	Species/populations occurring at levels of international importance. Qualifying Species/populations (as identified at designation): Species with peak counts in spring/autumn: • Ringed plover, *Charadrius hiaticula;* • Black-tailed godwit, *Limosa limosa islandica;* • Common redshank, *Tringa totanus totanus*. Species with peak counts in winter: • Dark-bellied brent goose, *Branta bernicla bernicla*; • Common shelduck, *Tadorna tadorna*; • Grey plover, *Pluvialis squatarola*; • Dunlin, *Calidris alpina alpina*. Species/populations identified subsequent to designation for possible future consideration under criterion 6. Species regularly supported during the breeding season: • Little tern, *Sterna albifrons albifrons*. See Appendix A for full details.				

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
Singleton and Cocking Tunnels SAC (approximately 8.5 km northeast)	Annex II species present as a qualifying feature, but not a primary reason for site selection: • 1308 Barbastelle (*Barbastella barbastellus);* • 1323 Bechstein's bat (*Myotis bechsteinii).*	Maintain or restore the extent and distribution of the habitats of qualifying species. Maintain or restore the structure and function of the habitats of qualifying species. Maintain or restore the supporting processes on which the habitats of qualifying species rely. Maintain or restore the populations of qualifying species. Maintain or restore the distribution of qualifying species within the site.	The SAC is located approximately 8.5 km from the option. According to the Sussex Bat Special Area of Conservation Planning and Landscape Scale Enhancement Protocol, the option is within the 'wider conservation area' (12 km)[53] with respect to impacts on bats. The wider conservation area is the full extent of the range of foraging areas required by the bats, and significant impacts or severance to flightlines are considered here. However, the option aims to provide upgraded pumping capacity and although some construction works may be required they will be localised to existing sites/ infrastructure. Therefore, an effect on the SAC is considered highly unlikely.	No effect	No
Rook Clift SAC (approximately 10 km north)	Annex I habitats that are a primary reason for selection of this site • 9180 Tilio-Acerion forests of slopes, screes and ravines * Priority feature.	Maintain or restore the extent and distribution of qualifying natural habitats. Maintain or restore the structure and function (including typical species) of qualifying natural habitats.	There will be no land take or habitat loss from within the SAC as a result of this option. The SAC is located 10 km from the option, with no direct hydrological links via watercourses. Both the option and the SAC are within the Chichester Chalk groundwater body; however, given the distance and nature of the works it is considered highly unlikely that there will be an	No effect	No

[53] Sussex Bat Special Area of Conservation Planning and Landscape Scale Enhancement Protocol - https://www.southdowns.gov.uk/wp-content/uploads/2018/04/TLL-15-Draft-Sussex-Bat-SAC-Protocol.pdf

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
		Maintain or restore the supporting processes on which qualifying natural habitats rely.	effect on the European Site as a result of the option.		
Pagham Harbour SPA (approximately 10 km south)	ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: • *Sterna albifrons;* • *Sterna hirundo.* Over winter the area regularly supports: • *Philomachus pugnax*. ARTICLE 4.2 QUALIFICATION (79/409/EEC) Over winter the area regularly supports: • *Branta bernicla bernicla.* See Appendix A for full details.	Maintain or restore the extent and distribution of qualifying natural habitats and habitats of qualifying species Maintain or restore the structure and function (including typical species) of qualifying natural habitats Maintain or restore the distribution of qualifying species within the site Maintain or restore the structure and function of the habitats of qualifying species Maintain or restore the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely Maintain or restore the populations of qualifying species	No works will take place within the SPA. There is no hydrological connectivity between the option and the SPA. The option is outside of any area identified in the Solent Waders and Brent Goose Strategy[54]. Therefore, it is considered unlikely that the option will result in any loss of functionally linked land or disturbance the mobile features of the SPA.	No effect	No

[54] https://solentwbgs.wordpress.com/page-2/

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
Pagham Harbour Ramsar site (approximately 10 km south)	Ramsar criterion 6 – species/populations occurring at levels of international importance. Qualifying species/populations (as identified at designation): Species with peak counts in winter: • Dark-bellied brent goose, *Branta bernicla bernicla.* Species/populations identified subsequent to designation for possible future consideration under criterion 6. Species with peak counts in winter: • Black-tailed godwit, *Limosa limosa islandica*. See Appendix A for full details.	There are no conservation objectives for the Ramsar site, therefore the objectives for the SPA (see above) have been used.	No works will take place within the Ramsar site and there is no hydrological connectivity with the option. The option is outside of any area identified in the Solent Waders and Brent Goose Strategy[55]. Therefore, it is considered unlikely that the option will result in any loss of functionally linked land or disturbance the mobile features of the Ramsar site.	No effect	No
Ebernoe Common SAC (approximately 23.2 km northeast)	Annex I habitats that are a primary reason for selection of this site • 9120 Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrublayer (*Quercion robori-petraeae* or *Ilici-Fagenion*). Annex II species that are a primary reason for selection of this site • 1308 Barbastelle (*Barbastella barbastellus);*	Maintain or restore the extent and distribution of qualifying natural habitats and habitats of qualifying species Maintain or restore the structure and function (including typical species) of qualifying natural habitats Maintain or restore the structure and function of	The SAC was screened in for potential impacts to foraging and commuting bats and supporting habitat outside the SAC. There are no other impact pathways for this option. The SAC is located over 23 km from the option. According to the Sussex Bat Special Area of Conservation Planning and Landscape Scale Enhancement Protocol[56], the option is outside of both the key conservation area and wider conservation area for assessing impacts on bats in relation to the SAC. Therefore, it is	No effect	No

[55] https://solentwbgs.wordpress.com/page-2/
[56] Sussex Bat Special Area of Conservation Planning and Landscape Scale Enhancement Protocol - https://www.southdowns.gov.uk/wp-content/uploads/2018/04/TLL-15-Draft-Sussex-Bat-SAC-Protocol.pdf

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
	• 1323 Bechsteins bat (*Myotis bechsteinii).*	the habitats of qualifying species	considered that there will be no effect on the qualifying features of the SAC.		
		Maintain or restore the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely			
		Maintain or restore the populations of qualifying species			
		Maintain or restore the distribution of qualifying species within the site			
The Mens SAC (approximately 24.7 km northeast)	Annex I habitats that are a primary reason for selection of this site: • 9120 Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrublayer (*Quercion robori-petraeae* or *Ilici-Fagenion*); Annex II species present as a qualifying feature, but not a primary reason for site selection • 1308 Barbastelle (*Barbastella barbastellus).*	Maintain or restore the extent and distribution of qualifying natural habitats and habitats of qualifying species.	The SAC was screened in for potential impacts to foraging and commuting bats and supporting habitat outside the SAC. There are no other impact pathways for this option. The SAC is located over 24 km from the option. According to the Sussex Bat Special Area of Conservation Planning and Landscape Scale Enhancement Protocol[57], the option is outside of both the key conservation area and wider conservation area for assessing impacts on bats in relation to the SAC. Therefore, it is considered that there will be no effect on the qualifying features of the SAC.	No effect	No
		Maintain or restore the structure and function (including typical species) of qualifying natural habitats.			
		Maintain or restore the structure and function of the habitats of qualifying species.			

[57] Sussex Bat Special Area of Conservation Planning and Landscape Scale Enhancement Protocol - https://www.southdowns.gov.uk/wp-content/uploads/2018/04/TLL-15-Draft-Sussex-Bat-SAC-Protocol.pdf

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
		Maintain or restore the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely.			
		Maintain or restore the populations of qualifying species			
		Maintain or restore the distribution or qualifying species within the site			

Table B-3. HRA Stage 1 Screening Review for Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 1) (PRT_PRT_HI-ROC_WT1_ALL_Works A treatment) and Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2) (PRT_PRT_HI-ROC_WT2_ALL_Works A treatment)

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
Chichester and Langstone Harbours SPA (approximately 930 m south)	ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: • *Sterna albifrons;* • *Sterna hirundo;* • *Sterna sandvicensis*. Over winter the area regularly supports: • *Limosa lapponica.* ARTICLE 4.2 QUALIFICATION (79/409/EEC) Over winter the area regularly supports: • *Anas acuta;* • *Anas clypeata;* • *Anas crecca;* • *Anas penelope;* • *Arenaria interpres;* • *Branta bernicla bernicla;* • *Calidris alba;* • *Calidris alpina alpina;*	Maintain or restore the extent and distribution of the habitats of the qualifying features Maintain or restore the structure and function of the habitats of the qualifying features Maintain or restore the supporting processes on which the habitats of the qualifying features rely Maintain or restore the population of each of the qualifying features Maintain or restore the distribution of the qualifying features within the site.	There will be no land take or habitat disturbance within the SPA site as a result of the proposed options. The options will increase the treatment capacity of the existing water treatment works and this water will be passed onto Reservoir B. The rejected brine water from the water recycling plant would be released, along with the treated wastewater, from Budds Farm via the existing Long Sea Outfall 5.7 km out into The Solent. This outfall was installed in 1992 to protect local bathing water quality and the harbour by releasing treated wastewater out into the deep-water channel. No water from the treatment works will be released into any of the European Sites directly, and given the volume of water the discharge is being released into it is considered reasonably likely that there will be only minor, very localised impacts on water chemistry. It is considered unlikely that these changes in water chemistry will have any measurable impact on the prey species of the qualifying features of the SPA, or the qualifying features themselves. Some construction works may be required in order to improve existing pipework/ infrastructure. The options and the European	No LSE	No

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
	• *Charadrius hiaticula;* • *Mergus serrator;* • *Numenius arquata;* • *Pluvialis squatarola;* • *Tadorna tadorna;* • *Tringa totanus*. ARTICLE 4.2 QUALIFICATION (79/409/EEC): AN INTERNATIONALLY IMPORTANT ASSEMBLAGE OF BIRDS Over winter the area regularly supports: 93230 waterfowl (5 year peak mean 1991/92-1995/96) Including: *Branta bernicla bernicla, Tadorna tadorna, Anas penelope, Anas crecca, Anas acuta, Anas clypeata, Mergus serrator, Charadrius hiaticula, Pluvialis squatarola, Calidris alba, Calidris alpina alpina, Limosa lapponica, Numenius arquata, Tringa totanus, Arenaria interpres.* See Appendix A for full details.		Site are in the same groundwater body; however, no changes in groundwater levels are anticipated and the risk of polluting groundwater is negligible and would not result in significant effect on the SPA given the distance from the options. There is no surface water connectivity to the European Site. No habitat loss/ disturbance or species disturbance impacts are anticipated.		
Chichester and Langstone Harbours Ramsar site (approximately 930 m south)	<u>Ramsar Criterion 1</u> Two large estuarine basins linked by the channel which divides Hayling Island from the main Hampshire coastline. The site includes intertidal mudflats, saltmarsh, sand and shingle spits and sand dunes.	There are no objectives for the Ramsar site, therefore the objectives for the SPA (above) have been applied.	See assessment for Chichester and Langstone Harbours SPA above.	No LSE	No

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
	Ramsar Criterion 5 Assemblages of international importance: Species with peak counts in winter: • 76480 waterfowl (5 year peak mean 1998/99-2002/2003). Ramsar Criterion 6 Species/populations occurring at levels of international importance. Qualifying Species/populations (as identified at designation): Species with peak counts in spring/autumn: • Ringed plover, *Charadrius hiaticula;* • Black-tailed godwit, *Limosa limosa islandica;* • Common redshank, *Tringa totanus totanus.* Species with peak counts in winter: • Dark-bellied brent goose, *Branta bernicla bernicla;* • Common shelduck, *Tadorna tadorna;* • Grey plover, *Pluvialis squatarola;* • Dunlin, *Calidris alpina alpina.* Species/populations identified subsequent to designation for				

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
	possible future consideration under criterion 6. Species regularly supported during the breeding season: • Little tern, *Sterna albifrons albifrons*. See Appendix A for full details.				
Solent Maritime SAC (approximately 1.1 km southeast)	Annex I habitats that are a primary reason for selection of this site: • 1130 Estuaries; • 1320 Spartina swards (*Spartinion maritima*); • 1330 Atlantic salt meadows (*Glauco-Puccinellietalia martitmae*). 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; • 1140 Mudflats and sandflats not covered by seawater at low tide; • 1150 Coastal lagoons * Priority feature; • 1210 Annual vegetation of drift lines; • 1220 Perennial vegetation of stony banks;	Maintain or restore the extent and distribution of qualifying natural habitats and habitats of qualifying species. Maintain or restore the structure and function (including typical species) of qualifying natural habitats. Maintain or restore the structure and function of the habitats of qualifying species. Maintain or restore the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely.	There will be no land take or habitat disturbance within the SAC as a result of the proposed option. There is no surface water hydrological connectivity to the European Site. The options will increase the treatment capacity of the existing water treatment works, this water will be passed onto Reservoir B. The rejected brine water from the water recycling plant would be released, along with the treated wastewater, from Budds Farm via the existing Long Sea Outfall 5.7 km out into The Solent, (outside the boundary of the SAC). This outfall was installed in 1992 to protect local bathing water quality and the harbour by releasing treated wastewater out into the deep-water channel. No water from the treatment works will be released into any of the European Sites directly and given the volume of water the discharge is being released into it is considered reasonably likely that there will be only minor, very localised impacts on water chemistry. It is considered unlikely that these changes in water chemistry will have any measurable impact on the qualifying features of the SAC.	No LSE	No

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
	• 1310 Salicornia and other annuals colonizing mud and sand; • 2120 "Shifting dunes along the shoreline with *Ammophila arenaria* (""white dunes"")". Annex II species present as a qualifying feature, but not a primary reason for site selection: • 1016 Desmoulin's whorl snail (*Vertigo moulinsiana).*	Maintain or restore the populations of qualifying species. Maintain or restore the distribution of qualifying species within the site.	Some construction works may be required in order to improve existing pipework/ infrastructure. Although the options and the European Site are in the same groundwater body, given their coastal location, that fact that no changes to groundwater are anticipated and the risk of pollution to groundwater is negligible, no effects on the SAC is anticipated by these means.		
Solent and Isle of Wight Lagoons SAC (approximately 2.1 km south)	Annex I habitats that are a primary reason for selection of this site: • 1150 Coastal lagoons	Maintain or restore the extent and distribution of qualifying natural habitats. Maintain or restore the structure and function (including typical species) of qualifying natural habitats. Maintain or restore the supporting processes on which qualifying natural habitats rely.	There will be no land take or habitat disturbance within the SAC site as a result of the proposed option. There is no surface water hydrological connectivity to the European Site. The options will increase the treatment capacity of the existing water treatment works, this water will be passed onto Reservoir B. The rejected brine water from the water recycling plant would be released, along with the treated wastewater, from Budds Farm via the existing Long Sea Outfall 5.7 km out into The Solent (outside the boundary of the SAC). This outfall was installed in 1992 to protect local bathing water quality and the harbour by releasing treated wastewater out into the deep-water channel. No water from the treatment works will be released into any of the European sites directly and given the volume of water the discharge is being released into it is considered reasonably likely that there will be only minor, very localised impacts on water chemistry. It is considered unlikely that these	No LSE	No

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
			changes in water chemistry will have any measurable impact on the qualifying features of the SAC. Some construction works may be required in order to improve existing pipework/ infrastructure. Although the options and the European Site are in the same groundwater body, given their coastal location, that fact that no changes to groundwater are anticipated and the risk of pollution to groundwater is negligible, no effects on the SAC is anticipated by these means.		
Solent and Dorset Coast SPA (approximately 2.5 km southwest)	ARTICLE 4.1 QUALIFICATION (79/409/EEC) • During the breeding season the area regularly supports: *Sterna sandvicensis* - 4.01% of the GB breeding population (5 year mean 2010-2014, 441 pairs); • *Sterna hirundo* - 4.77% of the GB breeding population (5 year mean 2009-2014, 492 pairs); • *Sterna albifrons* - 3.31% of the GB breeding population (5 year mean 2009-2014, 63 pairs).	Maintain or restore the extent and distribution of the habitats of the qualifying features Maintain or restore the structure and function of the habitats of the qualifying features Maintain or restores the supporting processes on which the habitats of the qualifying features rely Maintain or restore the population of each of the qualifying features. Maintain or restore the distribution of the qualifying features within the site.	There will be no land take or habitat disturbance within the SPA site as a result of the proposed options. There is no surface water hydrological connectivity to the European Site. The options will increase the treatment capacity of the existing water treatment works, this water will be passed onto Reservoir B. The rejected brine water from the water recycling plant would be released, along with the treated wastewater, from Budds Farm via the existing Long Sea Outfall 5.7 km out into The Solent (outside the boundary of the SPA). This outfall was installed in 1992 to protect local bathing water quality and the harbour by releasing treated wastewater out into the deep-water channel. Given the volume of water the discharge is being released into it is considered reasonably likely that there will be only minor, very localised impacts on water chemistry. It is considered unlikely that these	No LSE	No

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
			changes in water chemistry will have any measurable impact on the prey species of the qualifying features of the SPA, or the qualifying features themselves. Some construction works may be required in order to improve existing pipework/ infrastructure. Although the options and the European Site are in the same groundwater body, given their coastal location, that fact that no changes to groundwater are anticipated and the risk of pollution to groundwater is negligible, no effects on the SPA is anticipated by these means. No habitat loss/ disturbance or species disturbance impacts are anticipated.		
Portsmouth Harbour SPA (approximately 3.5 km southwest)	ARTICLE 4.2 QUALIFICATION (79/409/EEC) Over winter the area regularly supports: • *Branta bernicla bernicla* (Western Siberia/Western Europe) 0.9% of the population 5 year peak mean 1991/92-1995/96; • *Calidris alpina alpina* (Northern Siberia/Europe/Western Africa) 1% of the population in Great Britain 5 year peak mean 1991/92-1995/96; • *Limosa limosa islandica* (Iceland - breeding) 0.4% of the population in Great Britain 5	Maintain or restore the distribution of qualifying species within the site. Maintain or restore the structure and function of the habitats of the qualifying features Maintain or restores the supporting processes on which the habitats of the qualifying features rely Maintain or restore the population of each of the qualifying features Maintain or restore the distribution of the	There will be no land take or habitat disturbance within the SPA site as a result of the proposed options. There is no surface water hydrological connectivity to the European Site. The options will increase the treatment capacity of the existing water treatment works, this water will be passed onto Reservoir B. The rejected brine water from the water recycling plant would be released, along with the treated wastewater, from Budds Farm via the existing Long Sea Outfall 5.7 km out into The Solent. This outfall was installed in 1992 to protect local bathing water quality and the harbour by releasing treated wastewater out into the deep-water channel. No water from the treatment works will be released into any of the European sites directly, and given the volume	No LSE	No

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
	year peak mean 1991/92-1995/96; • *Mergus serrator* (North-western/Central Europe) 0.9% of the population in Great Britain 5 year peak mean 1991/92-1995/96.	qualifying features within the site.	of water the discharge is being released into it is considered reasonably likely that there will be only minor, very localised impacts on water chemistry. It is considered unlikely that these changes in water chemistry will have any measurable impact on the prey species of the qualifying features of the SPA, or the qualifying features themselves. Some construction works may be required in order to improve existing pipework/ infrastructure. Although the options and the European Site are in the same groundwater body, given their coastal location, that fact that no changes to groundwater are anticipated and the risk of pollution to groundwater is negligible, no effects on the SPA is anticipated by these means. No habitat loss/ disturbance or species disturbance impacts are anticipated.		
Portsmouth Harbour Ramsar site (approximately 3.5 km southwest)	Ramsar criterion 3 The intertidal mudflat areas possess extensive beds of eelgrass *Zostera angustifolia* and *Zostera noltei* which support the grazing dark-bellied brent geese populations. The mud-snail *Hydrobia ulvae* is found at extremely high densities, which helps to support the wading bird interest of the site. Common cord-grass *Spartina anglica* dominates large areas of the saltmarsh and there are also extensive areas of	In the absence of conservation objectives for the Ramsar, those for the SPA (above) have been used.	See assessment for Portsmouth Harbour SPA above.	No LSE	No

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
	green algae Enteromorpha spp. and sea lettuce *Ulva lactuca*. More locally the saltmarsh is dominated by sea purslane *Halimione portulacoides* which gradates to more varied communities at the higher shore levels. The site also includes a number of saline lagoons hosting nationally important species. Ramsar criterion 6 – species/populations occurring at levels of international importance. Qualifying Species/populations (as identified at designation): Species with peak counts in winter: Dark-bellied brent goose, *Branta bernicla bernicla*, 2105 individuals, representing an average of 2.1% of the GB population (5 year peak mean 1998/9-2002/3)				
Briddlesford Copses SAC (approximately 19 km southwest)	Annex II species that are a primary reason for selection of this site • 1323 Bechstein's bat (*Myotis bechsteinii).*	Maintain or restore the extent and distribution of the habitats of qualifying species. Maintain or restore the structure and function of the habitats of qualifying species. Maintain or restore the supporting processes on which the habitats of qualifying species rely.	There will be no land take or habitat disturbance within the SAC as a result of the proposed option. There is hydrological connectivity to the SAC from the option; however, given the large distance the pathway is considered to be defunct and no risk of pollution/ changes in water chemistry affecting the SAC. Whilst Bechstein's bat is a mobile feature, The Solent and the town of Portsmouth create large barriers to movement between the option and the SAC. It is therefore considered unlikely	No effect	No

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
		Maintain or restore the populations of qualifying species.	that bats will utilise habitats within and adjacent to the option.		
		Maintain or restore the distribution of qualifying species within the site.			
Singleton and Cocking Tunnels SAC (approximately 20 km northeast)	Annex II species present as a qualifying feature, but not a primary reason for site selection: • 1308 Barbastelle (*Barbastella barbastellus);* • 1323 Bechstein's bat (*Myotis bechsteinii).*	Maintain or restore the extent and distribution of the habitats of qualifying species.	There will be no land take or habitat disturbance within the SAC as a result of the proposed option. The option is located 20 km from the SAC. According to the Sussex Bat Special Area of Conservation Planning and Landscape Scale Enhancement Protocol, the option is outside of the 'wider conservation area' (12 km)[58] with respect to impacts on bats. The wider conservation area being the full extent of the range of foraging areas required by the bats. Given the scale, nature and location of the option, it is considered that the development will have no effect on Singleton and Cocking Tunnels SAC.	No effect	No
		Maintain or restore the structure and function of the habitats of qualifying species.			
		Maintain or restore the supporting processes on which the habitats of qualifying species rely.			
		Maintain or restore the populations of qualifying species.			
		Maintain or restore the distribution of qualifying species within the site.			
		Maintain or restore the structure and function of the habitats of qualifying species			

[58] Sussex Bat Special Area of Conservation Planning and Landscape Scale Enhancement Protocol - https://www.southdowns.gov.uk/wp-content/uploads/2018/04/TLL-15-Draft-Sussex-Bat-SAC-Protocol.pdf

European site and approximate distance from the option	Qualifying features	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
		Maintain or restore the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely			
		Maintain or restore the populations of qualifying species			

Table B-4. HRA Stage 1 Screening Review for Upgrade Source O Booster to 25 Ml/d (PRT_PRT_HI-ROC_ALL_ALL_source o booster) - additional European Sites screened in following consideration of option sources.

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
DECREASED ABSTRACTION SITES						
Source Q	Duncton to Bignor Escarpment SAC (approximately 6.9 km north)	• H9130 Asperulo-Fagetum beech forests	Maintain or restore the: • Extent and distribution of qualifying natural habitats; • Structure and function (including typical species) of qualifying natural habitats, and • Supporting processes on which the qualifying natural habitats rely.	Habitat on sloping/ elevated terrain and highly unlikely to be sensitive to hydrological change or groundwater pollution.	No effect	No
	Solent and Dorset Coast SPA (approximately 7 km south)	• Breeding tern species	Maintain or restore the: • Extent and distribution of the habitats of the qualifying features; • Structure and function of the habitats of the qualifying features; • Supporting processes on which the habitats of the qualifying features rely; • Populations of each of the qualifying features; and	Dynamic coastal site designated solely for birds. At distance from the abstraction site.	No effect	No

[59] Refer to Appendix A for details of qualifying features.

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
			• Distribution of qualifying features within the site.			
Source T	Duncton to Bignor Escarpment SAC (approximately 8.8 km northeast)	• H9130 Asperulo-Fagetum beech forests	Maintain or restore the: • Extent and distribution of qualifying natural habitats; • Structure and function (including typical species) of qualifying natural habitats, and • Supporting processes on which the qualifying natural habitats rely.	Habitat on sloping/ elevated terrain and highly unlikely to be sensitive to hydrological change or groundwater pollution.	No effect	No
	Solent and Dorset Coast SPA (approximately 7.2 km south)	• Breeding tern species	Maintain or restore the: • Extent and distribution of the habitats of the qualifying features; • Structure and function of the habitats of the qualifying features; • Supporting processes on which the habitats of the qualifying features rely; • Populations of each of the qualifying features; and • Distribution of qualifying features within the site.	Dynamic coastal site designated solely for birds. At distance from the abstraction site.	No effect	No
Source S	Arun Valley SAC (approximately 8.5 km northeast)	• Ramshorn snail	Maintain or restore the: • Extent and distribution of the habitats of qualifying species;	Potential impact from reduced groundwater abstraction needs to be investigated.	LSE uncertain	Yes

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
			• Structure and function of the habitats of qualifying species; • Supporting processes on which the habitats of qualifying species rely; • The populations of qualifying species, and, • The distribution of qualifying species within the site.			
	Arun Valley Ramsar site (approximately 8.5 km northeast)	• Invertebrates (criterion 2) • Invertebrates and plants (criterion 3) • Bird assemblage of international importance (criterion 5)	See objectives above for Arun Valley SAC.	Potential impact from reduced groundwater abstraction needs to be investigated.	LSE uncertain	Yes
	Arun Valley SPA (approximately 8.5 km northeast)	• Bewick's swan • Important bird assemblage	Maintain or restore the: • Extent and distribution of the habitats of the qualifying features; • Structure and function of the habitats of the qualifying features; • Supporting processes on which the habitats of the qualifying features rely; • The population of each of the qualifying features, and,	Potential impact from reduced groundwater abstraction needs to be investigated.	LSE uncertain	Yes

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
			• The distribution of the qualifying features within the site.			
	Duncton to Bignor Escarpment SAC (approximately 4.8 km north)	• H9130 Asperulo-Fagetum beech forests	Maintain or restore the: • Extent and distribution of qualifying natural habitats; • Structure and function (including typical species) of qualifying natural habitats, and • Supporting processes on which the qualifying natural habitats rely.	Habitat on sloping/elevated terrain and highly unlikely to be sensitive to hydrological change or groundwater pollution.	No effect	No
	Solent and Dorset Coast SPA (approximately 9 km south)	• Breeding tern species	Maintain or restore the: • Extent and distribution of the habitats of the qualifying features; • Structure and function of the habitats of the qualifying features; • Supporting processes on which the habitats of the qualifying features rely; • Populations of each of the qualifying features; and • Distribution of qualifying features within the site.	Dynamic coastal site designated solely for birds. At distance from the abstraction site.	No effect	No
Source P	Solent and Dorset Coast SPA (approximately 9.6 km south)	• Breeding tern species	Maintain or restore the: • Extent and distribution of the habitats of the qualifying features;	Dynamic coastal site designated solely for birds. At distance from the abstraction site.	No effect	No

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
			• Structure and function of the habitats of the qualifying features; • Supporting processes on which the habitats of the qualifying features rely; • Populations of each of the qualifying features; and • Distribution of qualifying features within the site.			
INCREASED ABSTRACTION SITES						
Source K	Butser Hill SAC (approximately 5.7 km northeast)	• H6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates • H91J0 Taxus baccata woods	Maintain or restore the: • Extent and distribution of qualifying natural habitats; • Structure and function (including typical species) of qualifying natural habitats, and • Supporting processes on which the qualifying natural habitats rely.	Habitat not sensitive to hydaulic change. SAC is elevated in the landscape and, therefore, unlikely to be affected by changes to groundwater.	No effect	No
	Solent and Isle of Wight Lagoons SAC (approximately 9.3 km south)	• Coastal lagoons	Maintain or restore the: • Extent and distribution of qualifying natural habitats; • Structure and function (including typical species) of qualifying natural habitats, and • Supporting processes on which the qualifying natural habitats rely.	Site 'downstream' in catchment. Habitat supporting features may be affected by reduced surface water flows into estuarine/coastal habitats.	LSE uncertain	Yes

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
	Solent and Dorset Coast SPA (approximately 8 km south)	• Breeding tern species	Maintain or restore the: • Extent and distribution of the habitats of the qualifying features; • Structure and function of the habitats of the qualifying features; • Supporting processes on which the habitats of the qualifying features rely; • Populations of each of the qualifying features; and • Distribution of qualifying features within the site.	Dynamic coastal site designated solely for birds. At distance from the abstraction site.	No effect	No
	River Meon pSAC (approximately 8 km west)	• H3260 Water courses of plain to montane levels with R. fluitantis • Chalk river species	Maintain or restore the: • Extent and distribution of qualifying natural habitats and habitats of qualifying species; • Structure and function (including typical species) of qualifying natural habitats; • Structure and function of the habitats of qualifying species; • Supporting processes on which qualifying natural habitats and the habitats of qualifying species rely; • The populations of qualifying species, and,	Increased abstraction in proximity to the spring fed chalk watercourse is likely to have a negative effect on river habitat and species through reduced water flow.	LSE	Yes

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
			• The distribution of qualifying species within the site.			
Source D	Solent and Southampton Water SPA (approximately 6.3 km south)	• Breeding and non-breeding birds • Waterbird assemblage	Maintain or restore the: • Extent and distribution of the habitats of the qualifying features; • Structure and function of the habitats of the qualifying features; • 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.	Site 'downstream' in catchment and sensitive to groundwater pollution	LSE uncertain	Yes
	Solent and Southampton Water Ramsar site (approximately 6.3 km south)	• Sheltered channel between island/mainland (criterion 1) • Wetland invertebrate and plant assemblage (criterion 2) • Waterbird assemblage (criterion 5)	See objectives above for Solent and Southampton Water SPA.	Site 'downstream' in catchment and sensitive to groundwater pollution	LSE uncertain	Yes

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
		• Breeding and wintering birds (criterion 6)				
	River Itchen SAC (approximately 5 km west)	• H3260 Water courses of plain to montane levels with R. fluitantis • Chalk river species	Maintain or restore the: • Extent and distribution of qualifying natural habitats and habitats of qualifying species; • Structure and function (including typical species) of qualifying natural habitats; • Structure and function of the habitats of qualifying species; • 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.	Increased abstraction in proximity to the spring fed chalk watercourse is likely to have a negative effect on river habitat and species through reduced water flow.	LSE	Yes
	Solent and Dorset Coast SPA (approximately 8.5 km south)	• Breeding tern species	Maintain or restore the: • Extent and distribution of the habitats of the qualifying features; • Structure and function of the habitats of the qualifying features;	Dynamic coastal site designated solely for birds. At distance from the abstraction site.	No effect	No

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
			• Supporting processes on which the habitats of the qualifying features rely; • Populations of each of the qualifying features; and • Distribution of qualifying features within the site.			
	River Meon pSAC (approximately 8 km west)	• H3260 Water courses of plain to montane levels with R. fluitantis • Chalk river species	Maintain or restore the: • Extent and distribution of qualifying natural habitats and habitats of qualifying species; • Structure and function (including typical species) of qualifying natural habitats; • Structure and function of the habitats of qualifying species; • 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.	Increased abstraction in proximity to the spring fed chalk watercourse is likely to have a negative effect on river habitat and species through reduced water flow.	LSE	Yes
Source G	Solent and Southampton Water SPA (approximately 8.5 km west)	• Breeding and non-breeding birds • Waterbird assemblage	Maintain or restore the: • Extent and distribution of the habitats of the qualifying features;	Site 'downstream' in catchment and sensitive to groundwater pollution	LSE uncertain	Yes

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
			• Structure and function of the habitats of the qualifying features; • 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.			
	Solent and Southampton Water Ramsar site (approximately 8.5 km west)	• Sheltered channel between island/mainland (criterion 1) • Wetland invertebrate and plant assemblage (criterion 2) • Waterbird assemblage (criterion 5) • Breeding and wintering birds (criterion 6)	See objectives above for Solent and Southampton Water SPA.	Site 'downstream' in catchment and sensitive to groundwater pollution	LSE uncertain	Yes
	Solent and Dorset Coast SPA (approximately 6.6 km south)	• Breeding tern species	Maintain or restore the: • Extent and distribution of the habitats of the qualifying features;	Dynamic coastal site designated solely for birds. At distance from the abstraction site.	No effect	No

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
			• Structure and function of the habitats of the qualifying features; • Supporting processes on which the habitats of the qualifying features rely; • Populations of each of the qualifying features; and • Distribution of qualifying features within the site.			
	River Meon pSAC (approximately 2.4 km northwest)	• H3260 Water courses of plain to montane levels with R. fluitantis • Chalk river species	Maintain or restore the: • Extent and distribution of qualifying natural habitats and habitats of qualifying species; • Structure and function (including typical species) of qualifying natural habitats; • Structure and function of the habitats of qualifying species; • 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.	Increased abstraction in proximity to the spring fed chalk watercourse is likely to have a negative effect on river habitat and species through reduced water flow.	LSE	Yes

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
Source C BH1	Solent and Southampton Water SPA (approximately 7 km south)	• Breeding and non-breeding birds • Waterbird assemblage	Maintain or restore the: • Extent and distribution of the habitats of the qualifying features; • Structure and function of the habitats of the qualifying features; • 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.	Site 'downstream' in catchment and sensitive to groundwater pollution	LSE uncertain	Yes
	Solent and Southampton Water Ramsar site (approximately 7 km south)	• Sheltered channel between island/mainland (criterion 1) • Wetland invertebrate and plant assemblage (criterion 2) • Waterbird assemblage (criterion 5) • Breeding and wintering birds (criterion 6)	See objectives above for Solent and Southampton Water SPA.	Site 'downstream' in catchment and sensitive to groundwater pollution	LSE uncertain	Yes

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
	River Itchen SAC (approximately 8 km west)	• H3260 Water courses of plain to montane levels with R. fluitantis • Chalk river species	Maintain or restore the: • Extent and distribution of qualifying natural habitats and habitats of qualifying species; • Structure and function (including typical species) of qualifying natural habitats; • Structure and function of the habitats of qualifying species; • 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.	Increased abstraction in proximity to the spring fed chalk watercourse is likely to have a negative effect on river habitat and species through reduced water flow.	LSE	Yes
	Solent and Dorset Coast SPA (approximately 9.6 km southwest)	• Breeding tern species	Maintain or restore the: • Extent and distribution of the habitats of the qualifying features; • Structure and function of the habitats of the qualifying features; • Supporting processes on which the habitats of the qualifying features rely;	Dynamic coastal site designated solely for birds. At distance from the abstraction site.	No effect	No

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
			• Populations of each of the qualifying features; and • Distribution of qualifying features within the site.			
	River Meon pSAC (approximately 5.4 km east)	• H3260 Water courses of plain to montane levels with R. fluitantis • Chalk river species	Maintain or restore the: • Extent and distribution of qualifying natural habitats and habitats of qualifying species; • Structure and function (including typical species) of qualifying natural habitats; • Structure and function of the habitats of qualifying species; • 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.	Increased abstraction in proximity to the spring fed chalk watercourse is likely to have a negative effect on river habitat and species through reduced water flow.	LSE	Yes
Source C BH2	Solent and Southampton Water SPA (approximately 6.9 km south)	• Breeding and non-breeding birds • Waterbird assemblage	Maintain or restore the: • Extent and distribution of the habitats of the qualifying features; • Structure and function of the habitats of the qualifying features;	Site 'downstream' in catchment and sensitive to groundwater pollution	LSE uncertain	Yes

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
			• 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.			
	Solent and Southampton Water Ramsar (approximately 6.9 km south)	• Sheltered channel between island/mainland (criterion 1) • Wetland invertebrate and plant assemblage (criterion 2) • Waterbird assemblage (criterion 5) • Breeding and wintering birds (criterion 6)	See objectives above for Solent and Southampton Water SPA.	Site 'downstream' in catchment and sensitive to groundwater pollution	LSE uncertain	Yes
	River Itchen SAC (approximately 8.1 km east)	• H3260 Water courses of plain to montane levels with R. fluitantis • Chalk river species	Maintain or restore the: • Extent and distribution of qualifying natural habitats and habitats of qualifying species; • Structure and function (including typical species) of qualifying natural habitats;	Increased abstraction in proximity to the spring fed chalk watercourse is likely to have a negative effect on river habitat and species through reduced water flow.	LSE	Yes

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
			• Structure and function of the habitats of qualifying species; • 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.			
	Solent and Dorset Coast SPA (approximately 9.6 km south)	• Breeding tern species	Maintain or restore the: • Extent and distribution of the habitats of the qualifying features; • Structure and function of the habitats of the qualifying features; • Supporting processes on which the habitats of the qualifying features rely; • Populations of each of the qualifying features; and • Distribution of qualifying features within the site.	Dynamic coastal site designated solely for birds. At distance from the abstraction site.	No effect	No
	River Meon pSAC (approximately 5.4 km east)	• H3260 Water courses of plain to montane levels with R. fluitantis • Chalk river species	Maintain or restore the: • Extent and distribution of qualifying natural habitats and habitats of qualifying species;	Increased abstraction in proximity to the spring fed chalk watercourse is likely to have a negative effect on river habitat and species through reduced water flow.	LSE	Yes

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
			• Structure and function (including typical species) of qualifying natural habitats; • Structure and function of the habitats of qualifying species; • 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.			
Source C BH3	Solent and Southampton Water SPA (approximately 6.9 km southwest)	• Breeding and non-breeding birds • Waterbird assemblage	Maintain or restore the: • Extent and distribution of the habitats of the qualifying features; • Structure and function of the habitats of the qualifying features; • 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.	Site 'downstream' in catchment and sensitive to groundwater pollution	LSE uncertain	Yes

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
	Solent and Southampton Water Ramsar site (approximately 6.9 km southwest)	• Sheltered channel between island/mainland (criterion 1) • Wetland invertebrate and plant assemblage (criterion 2) • Waterbird assemblage (criterion 5) • Breeding and wintering birds (criterion 6)	See objectives above for Solent and Southampton Water SPA.	Site 'downstream' in catchment and sensitive to groundwater pollution	LSE uncertain	Yes
	Solent and Dorset Coast SPA (approximately 9.6 km southwest)	• Breeding tern species	Maintain or restore the: • Extent and distribution of the habitats of the qualifying features; • Structure and function of the habitats of the qualifying features; • Supporting processes on which the habitats of the qualifying features rely; • Populations of each of the qualifying features; and • Distribution of qualifying features within the site.	Dynamic coastal site designated solely for birds. At distance from the abstraction site.	No effect	No
	River Meon pSAC (approximately 5.4 km east)	• H3260 Water courses of plain to montane levels with R. fluitantis	Maintain or restore the: • Extent and distribution of qualifying natural habitats	Increased abstraction in proximity to the spring fed chalk watercourse is likely to have a negative effect on river habitat	LSE	Yes

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
		• Chalk river species	and habitats of qualifying species; • Structure and function (including typical species) of qualifying natural habitats; • Structure and function of the habitats of qualifying species; • 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.	and species through reduced water flow.		
Source F	Solent and Southampton Water SPA (approximately 7.3 km west)	• Breeding and non-breeding birds • Waterbird assemblage	Maintain or restore the: • Extent and distribution of the habitats of the qualifying features; • Structure and function of the habitats of the qualifying features; • Supporting processes on which the habitats of the qualifying features rely; • The population of each of the qualifying features, and,	Site 'downstream' in catchment and sensitive to groundwater pollution	LSE uncertain	Yes

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
			• The distribution of the qualifying features within the site.			
	Solent and Southampton Water Ramsar site (approximately 7.3 km west)	• Sheltered channel between island/mainland (criterion 1) • Wetland invertebrate and plant assemblage (criterion 2) • Waterbird assemblage (criterion 5) • Breeding and wintering birds (criterion 6)	See objectives above for Solent and Southampton Water SPA.	Site 'downstream' in catchment and sensitive to groundwater pollution	LSE uncertain	Yes
	Solent and Dorset Coast SPA (approximately 7.8 km south)	• Breeding tern species	Maintain or restore the: • Extent and distribution of the habitats of the qualifying features; • Structure and function of the habitats of the qualifying features; • Supporting processes on which the habitats of the qualifying features rely; • Populations of each of the qualifying features; and • Distribution of qualifying features within the site.	Dynamic coastal site designated solely for birds. At distance from the abstraction site.	No effect	No

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
	River Meon pSAC (approximately 0.09 km north)	• H3260 Water courses of plain to montane levels with R. fluitantis • Chalk river species	Maintain or restore the: Extent and distribution of qualifying natural habitats and habitats of qualifying species; • Structure and function (including typical species) of qualifying natural habitats; • Structure and function of the habitats of qualifying species; • 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.	Increased abstraction in proximity to the spring fed chalk watercourse is likely to have a negative effect on river habitat and species through reduced water flow.	LSE	Yes
Source E	River Itchen SAC (approximately 6.6 km northwest)	• H3260 Water courses of plain to montane levels with R. fluitantis • Chalk river species	Maintain or restore the: • Extent and distribution of qualifying natural habitats and habitats of qualifying species; • Structure and function (including typical species) of qualifying natural habitats; • Structure and function of the habitats of qualifying species;	Increased abstraction in proximity to the spring fed chalk watercourse is likely to have a negative effect on river habitat and species through reduced water flow.	LSE	Yes

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
			• 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.			
	Butser Hill SAC (approximately 6.7 km southeast)	• H6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia), (note that this includes the priority feature "important orchid rich sites") • H91J0 Taxus baccata woods of the British Isles	Maintain or restore the: • Extent and distribution of qualifying natural habitats; • Structure and function (including typical species) of qualifying natural habitats, and • Supporting processes on which qualifying natural habitats rely.	Habitat not sensitive to hydaulic change. SAC is elevated in the landscape and, therefore, unlikely to be affected by changes to groundwater.	No effect	No
	East Hampshire Hangers SAC (approximately 8 km northeast)	• H6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia), (note that this includes	Maintain or restore the: • Extent and distribution of qualifying natural habitats and habitats of qualifying species; • Structure and function (including typical species) of qualifying natural habitats;	Habitat not sensitive to hydraulic change. Much of the SAC is elevated in the landscape and, therefore, unlikely to be affected by changes to groundwater.	No effect	No

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
		the priority feature "important orchid rich sites") • H9130 Asperulo-Fagetum beech forests • H9180 Tilio-Acerion forests of slopes, screes and ravines • H91J0 Taxus baccata woods of the British Isles • S1654 Early gentian, *Gentianella anglica*	• Structure and function of the habitats of qualifying species; • 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.			
	River Meon pSAC (approximately 0.8 km southwest)	• H3260 Water courses of plain to montane levels with R. fluitantis • Chalk river species	Maintain or restore the: • Extent and distribution of qualifying natural habitats and habitats of qualifying species; • Structure and function (including typical species) of qualifying natural habitats; • Structure and function of the habitats of qualifying species; • Supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;	Increased abstraction in proximity to the spring fed chalk watercourse is likely to have a negative effect on river habitat and species through reduced water flow.	LSE	Yes

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
			• The populations of qualifying species, and, • The distribution of qualifying species within the site.			
Source H	Solent and Southampton Water SPA (approximately 9.1 km southwest)	• Breeding and non-breeding birds • Waterbird assemblage	Maintain or restore the: • Extent and distribution of the habitats of the qualifying features; • Structure and function of the habitats of the qualifying features; • 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.	Site 'downstream' in catchment and sensitive to groundwater pollution	LSE uncertain	Yes
	Solent and Southampton Water Ramsar site (approximately 9.1 km southwest)	• Sheltered channel between island/mainland (criterion 1) • Wetland invertebrate and plant assemblage (criterion 2) • Waterbird assemblage (criterion 5)	See objectives above for Solent and Southampton Water SPA.	Site 'downstream' in catchment and sensitive to groundwater pollution	LSE uncertain	Yes

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
		• Breeding and wintering birds (criterion 6)				
	River Meon pSAC (approximately 0.07 km west)	• H3260 Water courses of plain to montane levels with R. fluitantis • Chalk river species	• Maintain or restore the: • Extent and distribution of qualifying natural habitats and habitats of qualifying species; • Structure and function (including typical species) of qualifying natural habitats; • Structure and function of the habitats of qualifying species; • 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.	Increased abstraction in proximity to the spring fed chalk watercourse is likely to have a negative effect on river habitat and species through reduced water flow.	LSE	Yes
Source J BH1	Solent and Isle of Wight Lagoons SAC (approximately 9.4 km south)	• H1150 Coastal lagoons	• Maintain or restore the: • Extent and distribution of qualifying natural habitats; • Structure and function (including typical species) of qualifying natural habitats, and	Site 'downstream' in catchment. Habitat supporting features may be affected by reduced surface water flows into estuarine/coastal habitats.	LSE uncertain	Yes

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
			• Supporting processes on which the qualifying natural habitats rely.			
	Solent and Dorset Coast SPA (approximately 6.2 km south)	• Breeding tern species	Maintain or restore the: • Extent and distribution of the habitats of the qualifying features; • Structure and function of the habitats of the qualifying features; • Supporting processes on which the habitats of the qualifying features rely; • Populations of each of the qualifying features; and • Distribution of qualifying features within the site.	Dynamic coastal site designated solely for birds. At distance from the abstraction site.	No effect	No
	River Meon pSAC (approximately 4.2 km northwest)	• H3260 Water courses of plain to montane levels with R. fluitantis • Chalk river species	Maintain or restore the: • Extent and distribution of qualifying natural habitats and habitats of qualifying species; • Structure and function (including typical species) of qualifying natural habitats; • Structure and function of the habitats of qualifying species; • Supporting processes on which qualifying natural	Increased abstraction in proximity to the spring fed chalk watercourse is likely to have a negative effect on river habitat and species through reduced water flow.	LSE	Yes

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
			habitats and the habitats of qualifying species rely; • The populations of qualifying species, and, • The distribution of qualifying species within the site.			
Source J BH2	Solent and Isle of Wight Lagoons SAC (approximately 9.2 km south)	• H1150 Coastal lagoons	Maintain or restore the: • Extent and distribution of qualifying natural habitats; • Structure and function (including typical species) of qualifying natural habitats, and • Supporting processes on which the qualifying natural habitats rely.	Site 'downstream' in catchment. Habitat supporting features may be affected by reduced surface water flows into estuarine/coastal habitats.	LSE uncertain	Yes
	Solent and Dorset Coast SPA (approximately 6.9 km south)	• Breeding tern species	Maintain or restore the: • Extent and distribution of the habitats of the qualifying features; • Structure and function of the habitats of the qualifying features; • Supporting processes on which the habitats of the qualifying features rely; • Populations of each of the qualifying features; and • Distribution of qualifying features within the site.	Dynamic coastal site designated solely for birds. At distance from the abstraction site.	No effect	No

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
	River Meon pSAC (approximately 4.3 km northwest)	• H3260 Water courses of plain to montane levels with R. fluitantis • Chalk river species	Maintain or restore the: • Extent and distribution of qualifying natural habitats and habitats of qualifying species; • Structure and function (including typical species) of qualifying natural habitats; • Structure and function of the habitats of qualifying species; • 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.	Increased abstraction in proximity to the spring fed chalk watercourse is likely to have a negative effect on river habitat and species through reduced water flow.	LSE	Yes
Source J BH3	Solent and Isle of Wight Lagoons SAC (approximately 9.2 km south)	• H1150 Coastal lagoons	Maintain or restore the: • Extent and distribution of qualifying natural habitats; • Structure and function (including typical species) of qualifying natural habitats, and • Supporting processes on which the qualifying natural habitats rely.	Site 'downstream' in catchment. Habitat supporting features may be affected by reduced surface water flows into estuarine/coastal habitats.	LSE uncertain	Yes

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
	Solent and Dorset Coast SPA (approximately 6.9 km south)	• Breeding tern species	Maintain or restore the: • Extent and distribution of the habitats of the qualifying features; • Structure and function of the habitats of the qualifying features; • Supporting processes on which the habitats of the qualifying features rely; • Populations of each of the qualifying features; and • Distribution of qualifying features within the site.	Dynamic coastal site designated solely for birds. At distance from the abstraction site.	No effect	No
	River Meon pSAC (approximately 4.3 km northwest)	• H3260 Water courses of plain to montane levels with R. fluitantis • Chalk river species	Maintain or restore the: • Extent and distribution of qualifying natural habitats and habitats of qualifying species; • Structure and function (including typical species) of qualifying natural habitats; • Structure and function of the habitats of qualifying species; • Supporting processes on which qualifying natural habitats and the habitats of qualifying species rely; • The populations of qualifying species, and,	Increased abstraction in proximity to the spring fed chalk watercourse is likely to have a negative effect on river habitat and species through reduced water flow.	LSE	Yes

Groundwater Source	European site and approximate distance from the source	Qualifying features[59]	Conservation objectives	Assessment	Likely Significant Effect?	HRA Stage 2 AA?
			• The distribution of qualifying species within the site.			

Appendix C. In-Combination Assessment for the Upgrade Source O Booster to 25 Ml/d

Document Title	Authority	Summary of report details	Summary of the potential for the proposed project/ plan to have an adverse effect on the European sites	Potential for LSE in-combination
South Downs National Park Authority Local Plan 2014-2033 Habitat Regulations Assessment[60] April, 2018	South Downs National Park Authority	A HRA of the potential effects of policies within the South Downs National Park Local Plan on European designated sites.	European sites identified in the HRA and potential effects: • Chichester and Langstone Harbours SPA and Ramsar site – the effects considered were recreational pressure, changes in water quality, changes in air quality and changes in water quantity; • Solent Maritime SAC – the effects considered were changes in water quality and changes in air quality; • Kingley Vale SAC – the effects considered are recreational pressure and air quality; • Arun Valley SAC, SPA and Ramsar site – the effects considered are recreational pressure, hydrology, loss of functionally linked land and urbanisation; • River Itchen SAC – the effects considered are air quality, hydrology and urbanisation; • Solent and Dorset Coast SPA - the effects considered are hydrology and water quality.	**Yes.** The Upgrade Source O Booster to 25 Ml/d option will not cause an increase in recreational pressure, changes to air quantity, loss of supporting habitat or urbanisation; therefore, there will be no in-combination effect as a result of these factors. There is potential for the Upgrade Source O Booster to 25 Ml/d option to have an in-combination effect with the South Downs National Park Local Plan on as a result of combined water quality and hydrology impacts. This affects Chichester and Langstone Harbours SPA/ Ramsar site, Solent Maritime SAC, Arun Valley SAC/ SPA/ Ramsar site, River Itchen SAC and Solent and Dorset Coast SPA.

[60] https://www.southdowns.gov.uk/planning-policy/south-downs-local-plan/local-plan-evidence-base/core-document-library/submission-documents/

			Potential effects from recreational pressure and changes to water quantity were screened out. It was concluded that changes to water quality and, air quality as a result of the Local Plan would lead to no LSE.	
West Sussex Minerals & Waste Development Framework Habitats Regulations Assessment – Screening of Likely Significant Effects Report[61] March 2010	West Sussex County Council	The HRA for the West Sussex Minerals & Waste Development Framework.	European sites identified in the HRA and potential effects: • Chichester and Langstone Harbours SPA/ Ramsar site - atmospheric pollution, changes to water quality, predation, disturbance and coastal squeeze; • Solent Maritime SAC - changes to water quality and coastal squeeze; • Arun Valley SPA/ Ramsar site – changes to water quality and disturbance. Four mineral sites and five waste sites have been screened in for Appropriate Assessment for Chichester and Langstone Harbours SPA/Ramsar site Solent Maritime SAC and two minerals sites and four waste sites for potential effects on Arun Valley SPA/ Ramsar site. A number of policies have also been screened in for Appropriate Assessment.	**Yes.** The Upgrade Source O Booster to 25 Ml/d option will not cause changes to air quality, increase disturbance, increase predation or contribute to coastal squeeze. Therefore, there is no in-combination effect in relation to these impacts. There is potential for the Upgrade Source O Booster to 25 Ml/d option to have an in-combination effect with the West Sussex Minerals and Waste Development Framework on Chichester and Langstone Harbours SPA/ Ramsar site, Solent Maritime SAC and Arun Valley SPA/ Ramsar site as a result of combined water quality impacts.
West Sussex Joint Minerals Local Plan Habitats Regulations Assessment[62] December 2016	West Sussex County Council	A HRA for the West Sussex Joint Minerals Plan.	European sites identified in the HRA:and the potential effect pathways considered: • Chichester and Langstone Harbour SPA/ Ramsar site – atmospheric pollution, local air pollution, water	No. As the Upgrade Source O Booster to 25 Ml/d option has the potential to impact water quality, there is scope for in-combination effects on Arun

[61] http://www2.westsussex.gov.uk/mlp/eb014.pdf
[62] http://www2.westsussex.gov.uk/mlp/osd013.pdf

(formal revisions adopted March 2021, plan period up to 2033)			quality, disturbance and coastal squeeze; • Solent Maritime SAC - atmospheric pollution, local air pollution, water quality, disturbance and coastal squeeze; • Solent Maritime SAC - atmospheric pollution, local air pollution, water quality and coastal squeeze; • Arun Valley SAC, SPA and Ramsar site – changes to water quality and disturbance. Only potential for adverse effects on Arun Valley sites due to water quality changes were identified and ruled out.	Valley SAC, SPA and Ramsar site. However, the plan covers the period up to 2033 and Source O will be delivered after this time in 2033-34. Therefore, it is considered there will be no in-combination effect. The Upgrade Source O Booster to 25 Ml/d option will not cause changes to air quality, cause atmospheric pollution, cause direct land take, increase disturbance or contribute to coastal squeeze. Therefore, there is no in-combination effect in relation to these impacts.
Habitat Regulations Assessment for the Hampshire Local Transport Plan 3, March 2011[63]	Hampshire County Council	HRA for Hampshire County Councils Local Transport Plan	The European sites considered within the HRA: • Chichester and Langstone Harbour SPA/ Ramsar site. • River Itchen SAC. • Solent and Isle of Wight Lagoons SAC. • Solent and Southampton Water SPA/ Ramsar site. The potential effects considered are atmospheric pollution, habitat loss, alteration of ground/surface water regimes, water quality, vibration during construction and mobilisation of contaminants during scheme implementation. The Local Transport Plan HRA screened out all potential impacts. It was concluded the Local Transport Plan would have no effect.	No. The local transport plan HRA screened out all potential impacts as having no effect.

[63] https://documents.hants.gov.uk/transport/HRAScreeningReportforLTPMarch2011.pdf

Hampshire Minerals and Waste Plan Assessment Under the Habitats Regulations, July 2013[64]	Hampshire County Council, Portsmouth City Council. New Forest National Park, Southampton City Council and South Downs National Park	The HRA for the Hampshire Minerals and Waste Plan.	The HRA considered the following European Sites and potential effect pathways: • Solent Maritime SAC - changes to hydrology and water quality, recreation, air quality and disturbance; • Solent and Southampton Water SPA/ Ramsar site – damage/ loss of habitat (including functionally linked land), damage/ loss of habitat, recreation, air quality and disturbance; • River Itchen SAC - damage/ loss of habitat, disturbance. The HRA concluded no adverse effects on site integrity with implementation of mitigation.	**Yes.** The Minerals and Waste Plan concluded more detailed information with regard to changes in water quality would be required. Therefore, there is potential for an in-combination effect with the Upgrade Source O Booster to 25 Ml/d option. The Upgrade Source O Booster to 25 Ml/d option will not lead to any other potneial in-combination effects.
Hampshire Local Flood Risk Management Strategy, Habitat Regulations Assessment Stage 1 Screening, February 2020[65]	Hampshire County Council	HRA for Hampshire County Councils Flood Risk Management Strategy	The European sites considered within the HRA: • Chichester and Langstone Harbours SPA and Ramsar site; • Solent Maritime SAC. The screening concluded there would be no LSE as a result of the objectives of the plan, alone or in-combination.	No. It was concluded that the Flood Risk Management Strategy would not lead to any effects on a European site, therefore an in-combination effect is not possible.
Chichester Site Allocation Development Plan Document[66] Habitat Regulations Assessment August 2018	Chichester District Council	HRA for Chichester District Council Site Allocation Development Plan which follows on from the adopted Chichester Local Plan: Key Policies 2014-2029 Development Plan Document.	The European sites considered are: • Chichester and Langstone Harbours SPA/ Ramsar Site; • Solent Maritime SAC. The following impacts were considered: • Increased recreational pressure; • Loss of supporting habitats; • Changes to water quality; • Disturbance from construction;	**Yes.** The HRA concluded there would be no adverse effect on site integrity from water quality changes as a result of the Site Allocation Development Plan at Stage 2. However, there is potential for an in-combination effect with the Upgrade Source O Booster to 25 Ml/d option on

[64] https://documents.hants.gov.uk/planning-strategic/HMWPHRARecordFINALSept2013.pdf
[65] https://documents.hants.gov.uk/planning-strategic/HMWPHRARecordFINALSept2013.pdf
[66] https://www.chichester.gov.uk/media/30416/Further-HRA-Appropriate-Assessment/pdf/HRA_August_2018_for_issue.pdf

			• Coastal squeeze; • Air quality. Impacts from coastal squeeze and air quality were ruled out as having no LSE at the strategic level. It was concluded at Stage 2 that changes to water quality and disturbance would have no adverse effect on site integrity. Mitigation is required for changes to recreational impacts and habitat loss.	Chichester and Langstone Harbours SPA/ Ramsar site and Solent Maritime SAC as a result of combined changes to water quality. The HRA concluded there may be impacts as a result of increased recreational pressure or loss of supporting habitat and further measures would be required. However, the Upgrade Source O Booster to 25 Ml/d option will not cause habitat loss or increased recreational pressure. Therefore, no other in-combination effects are possible.
Habitat Regulations Assessment: Chichester Local Plan Review[67] November 2018	Chichester District Council	HRA for Chichester District Council Local Plan Review.	The European sites considered and the potential impacts upon them are: • Chichester and Langstone Harbours SPA and Ramsar Site – recreation, urbanisation, loss of functionally linked land, coastal squeeze, changes to water quality and atmospheric pollution; • Solent Maritime SAC – atmospheric pollution; • Solent and Dorset Coast SPA – recreation, urbansation, loss of functionally linked land, coastal squeze, changes to water quality and atmospheric pollution; • Kingley Vale SAC – atmospheric pollution.	No. The Upgrade Source O Booster to 25 Ml/d option will not result in impacts in relation to recreation, urbanisation, coastal squeeze, loss of functionally linked land or atmospheric pollution. Therefore, in-combination effects are not possible. The Local Plan Review HRA ruled out the potential for any effects on water quality, therefore, an in-combination effect is not possible.

[67] https://chichester.gov.uk/media/30918/Habitat-Regulations-Assessment-Chichester-Local-Plan-Review/pdf/Chichester_Local_Plan_Review_HRA_Issue_V2_9_Nov_2018_(2).pdf

			The protective policy framework ensures no adverse effects on site integrity alone or in-combination.	
19/02758/FUL planning application Habitat Regulations Assessment[68]	Chichester District Council	HRA for the refurbishment and extension of Hambrook Holiday Park, including construction of new access road.	The HRA considers recreational impacts on the Chichester and Langstone Harbours SPA/Ramsar site only.	No. The Upgrade Source O Booster to 25 Ml/d option will have no impacts from increased recreational disturbance.
20/00053/FUL planning application HRA Screening Opinion[69] January 2020	Chichester District Council	HRA for the development of 34 lodge-style holiday caravans.	The HRA considered recreational impacts on Chichester and Langstone Harbour SPA/Ramsar site. No Appropriate Assessment was available, although this is listed as being required.	No. The Upgrade Source O Booster to 25 Ml/d option will have no impacts from increased recreational disturbance.
20/01288/FUL planning application HRA Screening Opinion[70] June 2020	Chichester District Council	Extensions to the existing packhouse facility to provide additional packing lines and new staff welfare facilities.	The HRA considers impacts from increased recreational disturbance on Chichester and Langstone Harbour SPA/Ramsar site. The screening concluded there would be no effect.	No. The Upgrade Source O Booster to 25 Ml/d option will have no impacts from increased recreational disturbance.
21/02258/FUL HRA Screening Opinion[71]	Chichester District Council	Addition/construction of a wildlife natural water dog swimming pond (10 m x 7 m x 1.3 m), jetty platform with oak supports (3 m x 1 m), timber pergola with roof, fencing and planting to reflect natural surroundings.	The HRA considers impacts as a result of increased recreational disturbance on Chichester and Langstone Harbour SPA/Ramsar site. The screening concluded there would be no effect.	No. The Upgrade Source O Booster to 25 Ml/d option will have no impacts from increased recreational disturbance.

[68] https://publicaccess.chichester.gov.uk/online-applications/files/AC97FA7EE8F936A4FBB50DBF37FE8310/pdf/19_02758_FUL-HABITAT_REGULATION_ASSESSMENT-3052373.pdf
[69] https://publicaccess.chichester.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=Q3VSX8ERM6A00
[70] https://publicaccess.chichester.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=QAZWGAERJQ900
[71] https://publicaccess.chichester.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=QAZWGAERJQ900

Charmans Field, Runcton Shadow Appropriate Assessment[72] August 2022	Chichester District Council	The HRA is for an outline planning application for the construction of 94 dwellings, new access road, urban drainage and associated works.	The HRA considers the following designated sites: • Chichester and Langstone Harbour SPA/ Ramsar site - Potential LSE include increased recreational disturbance of wintering birds. It was concluded there would be no LSE from increased recreational disturbance on breeding birds, disturbance of wintering and breeding birds during construction, hydrological changes and air quality changes; • Solent Maritime SAC - It was concluded there would be no LSE from recreational activity, hydrological changes and air quality changes.	**Yes.** The Charmans Field Appropriate Assessment concluded no LSE with regards to water quality. However, there is potential for in-combination effects on Solent Maritime SAC and Chichester and Langstone Harbours SPA/ Ramsar site. The Upgrade Source O Booster to 25 Ml/d option will not result in increased recreational disturbance or changes in air quality.
Harris Scrap Yard REPORT TO INFORM HABITATS REGULATIONS ASSESSMENT STAGE 1 AND STAGE 2[73] June 2022	Chichester District Council	The HRA for the construction of a development including 112 dwellings, a Children's Nursery with associated parking and landscaping.	The European sites considered in the HRA include: • Chichester and Langstone Harbours SPA and Ramsar site – disturbance and recreational pressure, nutrient outputs, air pollution and surface water pollution; • Solent Maritime SAC – nutrient outputs and air pollution; • Solent and Dorset Coast SPA – nutrient outputs; • Solent and Southampton Water SPA/ Ramsar site - disturbance and recreational pressure. All impacts on Kingley Vale SAC and Solent and Isle of Wight Lagoons SAC were ruled out.	**Yes.** It was concluded in the Harris Scrap Yard HRA that there was no potential for surface water pollution or nutrient outputs to have an adverse effect on Chichester and Langstone Harbours SPA and Ramsar site, Solent and Dorset Coast SPA and Solent Maritime SAC, provided appropriate mitigation was applied at AA. Therefore, it is considered that there is scope for an in-combination effect on the Solent Maritime SAC and Chichester and Langstone Harbours SPA/ Ramsar site. The Upgrade Source O

[72] https://publicaccess.chichester.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=RH4LPFER0ZU00
[73] https://publicaccess.chichester.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=RBZDWOERGJ300

				Booster to 25 Ml/d option will not result in any disturbance, recreation or air pollution.
Land north of Cook's Lane, Southbourne Information for Habitats Regulations Assessment[74] April 2022	Chichester District Council	HRA for a development of 199 dwellings.	The European sites and effect pathways considered in the HRA include: • Chichester and Langstone Harbours SPA and Ramsar site – recreational pressure, water quality; • Solent Maritime SAC – water quality; • Solent and Southampton Water SPA – water quality.	No. As the HRA concluded there would be no effect, there is no scope for in-combination effects with the option.
21/02054/FUL Habitats Regulations Assessment Screening Opinion[75] July 2021	Chichester District Council	Demolition of existing dwelling and the erection of 50 dwellings to include 35 private units and 15 affordable units, creation of proposed vehicular access, internal roads and footpaths, car parking, sustainable drainage system, open space with associated landscaping and amenity space.	The HRA considers impacts from increased recreation on Chichester and Langstone Harbour SPA/ Ramsar site. The screening concluded there would be no effect.	No. The Upgrade Source O Booster to 25 Ml/d option will not result in any recreational disturbance impacts.
Reside Developments Brook Cross, Hambrook Report to Inform Habitat Regulations Assessment[76] June 2021	Chichester District Council	The HRA is for the construction of 73 new dwellings.	The European sites considered within the HRA are: • Solent Maritime SAC; • Chichester and Langstone Harbours SPA and Ramsar site; • Kingley Vale SAC. The following potential effects were identified for each of the European sites: • Habitat loss (no effect); • Hydrological pollution (no effect);	No. The HRA for the development concluded no effect with regards to hydrological pollution, therefore an in-combination effect is considered unlikely. The Upgrade Source O Booster to 25 Ml/d option will not result in habitat loss, air quality impacts, increased

[74] https://publicaccess.chichester.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=R681M5ERKC400
[75] https://publicaccess.chichester.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=QVKMFVERK8O00
[76] https://publicaccess.chichester.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=QUUPZ1ERJO200

			• Air quality (no LSE); • Recreational pressure (no LSE); • Noise and lighting (no LSE).	recreational pressure or disturbance from noise and lighting.
21/01366/FUL Habitats Regulations Assessment Screening Opinion May 2021[77]	Chichester District Council	HRA for a hybrid planning application comprising 119 residential dwellings, new access from Manor Road, public open space, landscaping and associated works.	The HRA considers impacts from increased recreation on Chichester and Langstone Harbour SPA/ Ramsar site. The screening concluded there would be no effect.	No. The Upgrade Source O Booster to 25 Ml/d option will not result in any recreational disturbance impacts.
21/00571/FUL Habitat Regulation Assessment Screening Matrix and Appropriate Assessment Statement[78] March 2021	Chichester District Council	Construction of 300 dwellings (including 90 affordable dwellings), community hall, public open space, associated works and 2 no. accesses from the A259 (one temporary for construction).	The HRA considers recreational disturbance and habitat loss on the Chichester and Langstone Harbours SPA/ Ramsar site.	No. The Upgrade Source O Booster to 25 Ml/d option will not result in increased recreational disturbance, habitat loss or nutrient input effects and therefore in-combination effects can be ruled out.
21/00258/FUL Habitats Regulations Assessment Screening Opinion[79] January 2021	Chichester District Council	Erection of 80 bedroom Care Home (C2 Use) with associated access and landscaping.	The HRA considers impacts from increased recreation on Chichester and Langstone Harbour SPA/ Ramsar site. The screening concluded there would be no effect.	No. The Upgrade Source O Booster to 25 Ml/d option will not result in any recreational disturbance impacts.
Tangmere Strategic Development Location, West Sussex Report to Inform a Habitats Regulations Assessment (including Appropriate Assessment)[80] November 2022	Chichester District Council	The HRA is for an outline planning application for a residential-led mixed use development comprising up to 1,300 dwellings (Use Class C3), an expanded village centre (comprising flexible units suited to Use Class E and pubs or	The HRA considers impacts on the following European sites: • Chichester and Langstone Harbours SPA/ Ramsar site; • Solent Maritime SAC; • Kingley Vale SAC; • Solent and Dorset Coast SPA; • Arun Valley SAC.	**Yes.** All effects apart from recreational disturbance effects on Chichester and Langstone Harbour were assessed as having no LSE on any European site. As the Upgrade Source O Booster to

[77] https://publicaccess.chichester.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=QSKZ5PER0PD00
[78] https://publicaccess.chichester.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=QP1HZXERMHX00
[79] https://publicaccess.chichester.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=QNNIJYERLE500
[80] https://publicaccess.chichester.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=QJZZT4ERIUA00

		drinking establishments and/or takeaways in Use Class Sui Generis), community uses, primary school, informal and formal open space, playing pitches, footpaths, cycleways, associated landscaping, utilities and drainage infrastructure, including on-site pumping station(s) with connection to the Strategic Foul network; associated infrastructure and groundworks; with all matters reserved except for the principal access junctions from the A27 grade-separated junction and Tangmere Road and the secondary access at Malcolm Road.	The potential effects considered in the HRA are: • Loss of habitats; • Recreational disturbance; • Air quality effects; • Urbanisation; • Water quality; • Water demand; • Coastal squeeze. All effects on the European Sites were screened out apart from recreational effects on Chichester and Langstone Harbours SPA/ Ramsar site.	25 Ml/d option will not result in increased recreational disturbance on the SPA and Ramsar site, no in-combination effect is possible. The HRA considered potential water quality effects, there is scope for an in-combination effect with the Upgrade Source O Booster to 25 Ml/d option.
20/02471/FUL Habitats Regulations Assessment Screening Opinion[81] October 2020	Chichester District Council	Erection of 143 dwellings, with associated access, parking, public open space, landscaping, extension to residential curtilages of existing properties along Oving Road and other associated works.	The HRA considers recreational impacts on Chichester and Langstone Harbour SPA/ Ramsar site. The screening concluded an AA would be required, but this was not available.	No. As the Upgrade Source O Booster to 25 Ml/d option will not result in increased recreational disturbance on the SPA and Ramsar site, no in-combination effect is possible.
20/01915/FUL Habitats Regulations Assessment Screening Opinion[82] July 2020	Chichester District Council	Change of use from student accommodation (Sui Generis) to create 16 no. residential units (C3	The HRA considers recreational impacts on Chichester and Langstone Harbour SPA/ Ramsar site. The screening concluded an	No. As the Upgrade Source O Booster to 25 Ml/d option will not result in increased

[81] https://publicaccess.chichester.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=QHIYZNERGV300
[82] https://publicaccess.chichester.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=QEAF85ERM5000

		Use Class) with associated car parking and hard and soft landscaping.	AA would be required, but this was not available.	recreational disturbance on the SPA and Ramsar site, no in-combination effect is possible.
20/01686/FUL Habitats Regulations Assessment Screening Opinion[83] July 2020	Chichester District Council	Erection of 41 no. dwellings and associated development, including landscaping, highways and parking.	The HRA considers recreational impacts on Chichester and Langstone Harbour SPA/ Ramsar site. The screening concluded that an AA would be required, but this was not available.	No. As the Upgrade Source O Booster to 25 Ml/d option will not result in increased recreational disturbance on the SPA and Ramsar site, no in-combination effect is possible.
Habitat Regulation Assessment (HRA) Screening Matrix and Appropriate Assessment Statement[84] October 2022	Chichester District Council	The proposals are for the change of use of land from agricultural to 2 no. travelling showmen plots and the construction and use of said showman plots.	The European sites and effects considered: • Chichester and Langstone Harbours SPA/ Ramsar site - disturbance/ recreational pressure; • Solent Maritime SAC – nutrient neutrality. With mitigation it was concluded that there would be no adverse effect on site integrity	No. The Upgrade Source O Booster to 25 Ml/d option will not result in any recreational disturbance or affect nutrient neutraility, therefore, no effect in combination can be concluded.
21/01391/FUL Habitats Regulations Assessment Screening Opinion[85] May 2021	Chichester District Council	Redevelopment of the existing industrial estate, including demolition of the existing buildings. The scheme provides approximately 4448 m2 (47877ft) of lettable industrial space all under B1(b), B1(c) and B8 use classes with 5 no. replacement buildings.	The HRA considers recreational impacts on Chichester and Langstone Harbour SPA/ Ramsar site. The screening concluded there would be no effect.	No. As the screening concluded there would be no effect, there is no scope for in-combination effects with the option.
22/01742/FUL Habitats Regulation Assessment – Screening Matrix[86]	Chichester District Council	Demolition of three workshops/sheds for the comprehensive redevelopment of the	The HRA considers impacts on Chichester and Langstone Harbour SPA/ Ramsar site.	No. As the screening concluded there would be no effect, there

[83] https://publicaccess.chichester.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=QD3T63ERL9H00
[84] https://publicaccess.chichester.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=R7EOSRERL7200
[85] https://publicaccess.chichester.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=QSMSV2ERHU600
[86] https://publicaccess.chichester.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=REL7H8ERIIE00

		South-West area of the marina comprising four purpose built buildings including marine related workshops, offices, storage, reprovision and extension of the retail (chandlery) and a cafe/restaurant together with an additional 23 car parking spaces, boat parking and storage and appropriate landscaping	The screening concluded there would be no effect.	is no scope for in-combination effects with the option.
Air Quality Habitat Regulations Assessment for Havant Borough Local Plan 2036[87] January 2019	Havant Borough Council	HRA for the Havant Borough Air Quality Plan.	Potential air pollution effects on Chichester and Langstone Harbours SPA/ Ramsar site, , Solent and Dorset Coast SPA, Solent and Isle of Wight Lagoons SAC, Solent and Southampton Water SPA/ Ramsar site and Kingely Vale SAC were ruled out as having no effect. There was potenial for adverse effects on Solent Maritime SAC pre-mitigation.	No. The Upgrade Source O Booster to 25 Ml/d option will not have air quality effects and, therefore, there is no scope for in-combination effects.
Rook Farm, Hayling Island Information to inform Habitats Regulations Assessment[88], October 2021	Havant Borough Council	HRA for outline planning permission for a residential development.	The HRA considers the following European Site and effect pathways: • Solent Maritime SAC - air quality, hydrological regime, pollution of surface/ groundwater; • Chichester and Langstone Harbours SPA/ Ramsar site – disturbance, air quality, hydrological regime, pollution of surface/ groundwater; • Solent and Dorset Coast SPA - hydrological regime, pollution of surface/ groundwater;	**Yes.** The Upgrade Source O Booster to 25 Ml/d option will not have impacts in relation to air quality or disturbance of qualifying species. There is potential for in-combination effects from pollution of surface/ groundwater and changes to hydrological regime on the European Sites with the Upgrade Source O Booster to

[87] https://cdn.havant.gov.uk/public/documents/CD14%20Air%20Quality%20Habitat%20Regulations%20Assessment.pdf
[88] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_252459

			• Solent and Isle of Wight Lagoons SAC - pollution of surface/ groundwater; • Solent and Southampton Water SPA/ Ramsar site - disturbance, pollution of surface/ groundwater.	25 Ml/d option. However, this is unlikely to be significant.
Havant Borough Local Plan Habitats Regulations Assessment[89] June 2020	Havant Borough Council	HRA for the Havant Borough Council Local Plan	European Sites included in the assessment and potential effect pathways: • Solent Maritime SAC – habitat loss, air quality, coastal squeeze, water resources/ nutrient neutrality; • Chichester and Langstone Harbours SPA/ Ramsar site – habitat loss, recreational disturbance coastal squeeze, water resources/ nutrient neutrality; • Solent and Isle of Wight Lagoons SAC – water resources/ nutrient neutrality; • Solent and Dorset Coast SPA – habitat loss, coastal squeeze, water resources/ nutrient neutrality; • Solent and Southampton Water SPA/ Ramsar site – water resources/ nutrient neutrality; • Kingley Vale SAC – all impacts ruled out due to distance. With mitigation it was concluded that the plan would hve no adverse effect on the integrity of any European Sites.	**Yes.** The Upgrade Source O Booster to 25 Ml/d option will not have effects in relation to coastal squeeze, habitat loss, air quality or disturbance. However, there is still potential for in-combination effects on the with the Upgrade Source O Booster to 25 Ml/d option with respect to water resources. However, this is unlikely to be significant.
Habitats Regulations Assessment Langstone Technology Park[90], March 2022	Havant Borough Council	HRA for the outline planning application for the erection of a new employment space.	The HRA considers impacts on Chichester and Langstone Harbours SPA/Ramsar site. These are disruption, changes in habitat use, and loss of habitats. The HRA concluded there would be no LSE on the European site.	No. Water quality effects were not considered in the Technology Park HRA. As this is the only feasible impact pathway for the Upgrade Source O Booster to

[89] https://cdn.havant.gov.uk/public/documents/HBLP%20HRA%20changes%20June%202020.pdf
[90] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_252888

				25 Ml/d option, in-combination are not considered possible.
Rook Farm, Hayling Island Information to inform Habitats Regulations Assessment[91], October 2021	Havant Borough Council	HRA for outline planning permission for a residential development.	The HRA considers impacts on Solent Maritime SAC and Chichester and Langstone Harbours SPA/Ramsar site. Potential effects considered for Chichester and Langstone Harbours SPA/Ramsar site were: • Recreation pressure • Loss of supporting habitat • Air quality • Hydrological regime change • Eutrophication Potential effects considered for Solent Maritime SAC were: • Air quality • Hydrological regime change • Eutrophication	Yes. There is potential for the development at Rook Farm and the Upgrade Source O Booster to 25 Ml/d option to have in-combination effects on the water quality of the European site. The Upgrade Source O Booster to 25 Ml/d option will not have any impacts relating to recreation pressure, loss of supporting habitats or air quality.
APP/21/01259 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[92], February 2022	Havant Borough Council	The HRA for a development comprising of 122 dwellings.	The European sites considered in the HRA: • Chichester and Langstone Harbours SPA/ Ramsar site; • Solent Maritime SAC; • Solent and Dorset Coast SPA; • Solent and Southampton Water SPA/ Ramsar site; • Solent and Isle of Wight Lagoons SAC. The HRA considered water quality, degradation of supporting habitats, construction impacts (noise, pollution), air quality. It concluded that with mitigation there would be no adverse effects on site integrity.	**Yes**. There is potential for in-combination effects with regard to changes in water quality. However, there will be no in-combination effect on the European Site as a result of changes to the other effect pathways with the Upgrade Source O Booster to 25 Ml/d option will result in this effect.

[91] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_252459
[92] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_252213

Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[93], March 2023 Land South of Lower Road and West of Old Manor Farm, Bedhampton	Havant Borough Council	HRA for the outline planning application for 43 dwellings with access from Lower Road and associated landscaping, open space and allotments, and all other matters reserved	The HRA considers: • Chichester and Langstone Harbours SPA/Ramsar site • Solent Maritime SAC • Solent and Dorset Coast SPA • Solent and Southampton Water SPA/ Ramsar site • Solent and Isle of Wight Lagoons SAC Impacts considered are recreational pressure, water quality and loss/ degradation of supporting habitats. The HRA concluded that with mitigation there would be no adverse effects on site integrity.	**Yes.** There is scope for an in-combination effect with the Upgrade Source O Booster to 25 Ml/d option with regard to water quality. The other effect pathways are not relevant to the option.
Land off St Georges Avenue, Havant. Report to Inform Habitats Regulations Assessment Stage 1 and Stage 2[94], June 2021	Havant Borough Council	HRA for the erection of 184 dwellings including associated infrastructure and landscaping.	The HRA considers both Chichester and Langstone Harbours SPA/Ramsar site and Solent Maritime SAC. Impacts pathways considered for the European sites: • Chichester and Langstone Harbours SPA/Ramsar site – atmospheric pollution, disturbance from recreation, loss/degradation of supporting habitats and water resources and abstraction. • Solent Maritime SAC – Water resources and abstraction and atmospheric pollution.	No. All impact pathways apart from habitat loss, recreation and foul water drainage were ruled out. The Upgrade Source O Booster to 25 Ml/d option does not have these impact pathways, therefore, there is no scope for in-combination effects.
Shadow Habitat Regulations Assessment. Land north of Long Copse Lane, Emsworth[95], March 2022	Havant Borough Council	HRA for the outline planning application for the demolition of the existing buildings and erection of a new residential scheme.	The European sites considered in the HRA: • Chichester and Langstone Harbours SPA/ Ramsar site • Solent Maritime SAC • Kingley Vale SAC • Solent and Isle of Wight Lagoons SAC.	**Yes.** The Upgrade Source O Booster to 25 Ml/d option will not cause atmospheric pollution, recreation or impact supporting habitats. Therefore, in-combination effects for

[93] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_251908
[94] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_251789
[95] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_251575

			The impact pathways identified were; • Pollution to groundwater and water resources • Atmospheric pollution • Recreational pressure • Ecosystem modifications (loss or degradation of supporting habitats).	these pathways are not possible. The Shadow HRA considered pollution impacts and concluded there would be no LSE, however, there is scope for in-combination effects with the option.
Southmere Field, Langstone Road, Langstone Havant. Shadow Habitat Regulations Assessment[96], July 2021	Havant Borough Council	HRA for the outline planning application for the construction of 65 dwellings and associated works.	The HRA considers: • Chichester and Langstone Harbours SPA/Ramsar site • Solent Maritime SAC • Solent and Dorset Coast SPA • Solent and Isle of Wight Lagoons SAC The potential effects considered are: • Pollution to ground water and surface water • Change in nitrogen output • Recreational activities • Impacts on functionally linked land	**Yes.** The Upgrade Source O Booster to 25 Ml/d option will not have effects relating to nitrogen output, recreation or impacts on functionally linked land. Therefore, in-combination impacts are not possible with respect to these effects. The HRA concludes that there will be LSE in relation to pollution of surface water during construction and operation, therefore there is the potential for in-combination effects.
Forty Acres Farm, Havant. Report to Inform Habitats Regulations Assessment Stage 1 and Stage 2[97], May 2021	Havant Borough Council	Re-plan part of the residential area of the site to facilitate an additional 34 new homes within the development area to create a total 147 dwellings, inclusive of the additional 34 units.	European sites and potential impact pathways considered: • Chichester and Langstone Harbours SPA/Ramsar site – construction activity (noise and pollution from dust), water resources, loss of supporting habitats, disturbance	No. The Upgrade Source O Booster to 25 Ml/d option will not have effects relating to loss of supporting habitats, construction related noise, fugitive dust, disturbance from recreation and atmospheric

[96] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_251054

[97] https://planningpublicaccess.havant.gov.uk/online-applications/files/5AE6C40F63E8DE7A64835C64D3C6701C/pdf/APP_21_00605-REPORT_TO_INFORM_HABITATS_REGULATIONS_ASSESSMENT_STAGE_1_AND_2-1493297.pdf

			from recreation and atmospheric pollution. • Solent Maritime SPA - construction activity (noise and pollution from dust), water resources, loss of supporting habitats, disturbance from recreation and atmospheric pollution.	pollution. The Source O Booster option will not result in surface water run off or changes to foul drainage. Therefore, in-combination impacts are not feasible.
Cottage Farm, Lovedean. Report to Inform Habitats Regulations Assessment Stage 1 and Stage 2[98], January 2021	Havant Borough Council	HRA for the construction of 43 dwellings with associated landscaping and road infrastructure.	The HRA considers: • Chichester and Langstone Harbours SPA/ Ramsar site • Solent Maritime SAC • Solent and Dorset Coast SPA • Solent and Isle of Wight Lagoons SAC • Solent and Southampton Water SPA The only potential pathway considered was the release of nutrient outputs resulting from changing land use.	**Yes.** The Upgrade Source O Booster to 25 Ml/d option has the potential to result in changes to water quality, therefore there may be an in-combination effect.
Sinah Lane, Hayling Island. Information to Inform Habitats Regulations Assessment[99], November 2020	Havant Borough Council	HRA for the construction of 195 dwellings and associated landscaping.	The HRA considers Chichester and Langstone Harbours SPA/Ramsar site. The impact pathways include disturbance from recreation, water pollution, changes in species distributions, air pollution and impacts on supporting habitats.	**Yes.** The Sinah Lane HRA considered impacts in relation to water pollution. Therefore, despite concluding no LSE, there is potential for in-combination effects. The Upgrade Source O Booster to 25 Ml/d option will not impact supporting habitats, air pollution, species distributions or increase disturbance from recreation.

[98] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_250280
[99] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_249519

APP/20/00933 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[100], October 2020. 9 East Street, Havant, PO9 1AA	Havant Borough Council	HRA for the demolition of an existing retail unit (no. 9 East Street) and construction of 10 no. supported living units.	The HRA considers impacts on water quality and increased recreation on: • Solent Maritime SAC • Chichester and Langstone Harbours SPA/Ramsar site. • Solent and Dorset Coast SPA • Solent and Isle of Wight Lagoons SAC • Solent and Southampton Water SPA/ Ramsar site The HRA concludes there will be no adverse effects with mitigation.	**Yes.** As water quality impacts are considered, there is potential for in-combination effects to occur. The Upgrade Source O Booster to 25 Ml/d will not result in changes to recreation, therefore, no in-combination effect is likely for this effect.
Cottage Farm, Lovedean. Report to Inform Habitats Regulations Assessment Stage 1 and Stage 2, May 2020[101]	Havant Borough Council	HRA for the construction of 56 dwellings with associated landscaping and road infrastructure.	The HRA considers changes in nutrient outputs on: • Solent Maritime SAC • Chichester and Langstone Harbours SPA/Ramsar site. • Solent and Dorset Coast SPA • Solent and Isle of Wight Lagoons SAC • Solent and Southampton Water SPA/ Ramsar site	**Yes.** The Upgrade Source O Booster to 25 Ml/d option has the potential to result in changes to water quality, therefore there may be an in-combination effect.
APP/20/00441 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[102], September 2021.	Havant Borough Council	HRA for an outline planning application for the development of 100 dwellings and associated access improvements and landscaping.	The HRA considers changes to water quality and recreation pressures on: • Solent Maritime SAC • Chichester and Langstone Harbours SPA/Ramsar site. • Solent and Dorset Coast SPA • Solent and Isle of Wight Lagoons SAC • Solent and Southampton Water SPA/ Ramsar site	**Yes.** The Upgrade Source O Booster to 25 Ml/d option will not result in changes to recreation, therefore, an in-combination effect is not possible. However, there is potential for there to be an in-combination effects on water quality with the

[100] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_249239
[101] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_248270
[102] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_248241

				Upgrade Source O Booster to 25 Ml/d option.
APP/20/00363 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[103], September 2021.	Havant Borough Council	HRA for the demolition of the existing structure and construction of a building with 20 apartments.	The HRA considers changes to water quality and recreation pressures on: • Solent Maritime SAC • Chichester and Langstone Harbours SPA/Ramsar site. • Solent and Dorset Coast SPA • Solent and Isle of Wight Lagoons SAC • Solent and Southampton Water SPA/ Ramsar site	**Yes.** The Upgrade Source O Booster to 25 Ml/d option will not result in changes to recreation; therefore, there is no scope for an in-combination effect. However, there is potential for there to be an in-combination effects on water quality with the Upgrade Source O Booster to 25 Ml/d option.
APP/20/00251 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[104], September 2020.	Havant Borough Council	HRA for the construction of 29 apartments, commercial units and demolition of existing retail development.	The HRA considers changes to water quality and recreation pressures on: • Solent Maritime SAC • Chichester and Langstone Harbours SPA/Ramsar site. • Solent and Dorset Coast SPA • Solent and Isle of Wight Lagoons SAC • Solent and Southampton Water SPA/ Ramsar site	**Yes.** The Upgrade Source O Booster to 25 Ml/d option will not result in changes to recreation; therefore, there is no scope for an in-combination effect. However, there is potential for there to be an in-combination effects on water quality with the Upgrade Source O Booster to 25 Ml/d option.
Land off Solent Road, Havant Information specific to a Habitats Regulations Assessment pursuant to Regulation 63 of The Conservation of Habitats and	Havant Borough Council	HRA for the proposed Portsmouth Water Headquarters building, widened access onto Solent Road and associated car parks and landscaping.	The HRA considers impacts of habitat loss and water quality on: • Solent Maritime SAC • Chichester and Langstone Harbours SPA/Ramsar site. • Solent and Dorset Coast SPA	No. The HRA concluded there would be no effect on the European sites.

[103] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_248058
[104] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_247889

Species Regulations 2017[105], October 2021			• Solent and Isle of Wight Lagoons SAC • Solent and Southampton Water SPA/ Ramsar site	
Harts Farm Way, Havant Habitats Regulations Assessment[106], November 2021	Havant Borough Council	HRA for the outline planning application for the development of new employment units, with associated car parking, drainage works and landscaping.	The HRA considers impacts on connectivity, air quality, disturbance, water quality and hydrology on Chichester and Langstone Harbours SPA/Ramsar site. Impacts on Solent and Southampton Water SPA not assessed.	**Yes.** The Harts Farm Way HRA identifies the potential for pollution events to occur during construction, which will affect water quality; therefore, an in-combination effect is possible. The Upgrade Source O Booster to 25 Ml/d option will not effect air quality, disturbance or hydrology.
APP/20/00761 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[107], October 2020 Land on the east side of Helmsley House, Bartons Road, and west of Normandy Road, Havant.	Havant Borough Council	HRA for the construction of a 64-bed care home, with new access road, car parking, drainage works and landscaping.	The HRA considers changes to water quality and recreation pressures on: • Solent Maritime SAC • Chichester and Langstone Harbours SPA/Ramsar site. • Solent and Dorset Coast SPA • Solent and Isle of Wight Lagoons SAC • Solent and Southampton Water SPA/ Ramsar site	**Yes.** The Upgrade Source O Booster to 25 Ml/d option will not result in changes to recreation; therefore, there is no scope for an in-combination effect. The HRA for the outline planning application also considered effects on water quality, so there is potential for there to be an in-combination effects with the Upgrade Source O Booster to 25 Ml/d option.

[105] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_251001
[106] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_250174
[107] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_248910

APP/20/00991 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[108], April 2021	Havant Borough Council	HRA for the outline planning application for the construction of a new pipeline to transfer water from Source B2 to fill the reservoir.	The HRA considers changes to water quality on Solent Maritime SAC, Solent and Dorset Coast SPA and Chichester and Langstone Harbours SPA/Ramsar site. The HRA for the outline planning application concluded LSE at screening.	**Yes.** As effects on water quality have been considered, there is potential for there to be an in-combination effect with the Upgrade Source O Booster to 25 Ml/d option.
APP/20/00990 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[109], April 2021	Havant Borough Council	HRA for the development of a reservoir for raw water storage and pumped water storage.	The HRA considers changes to water quality on Solent Maritime SAC, Solent and Dorset Coast SPA and Chichester and Langstone Harbours SPA/Ramsar site. The HRA for the outline planning application concluded LSE at screening.	**Yes.** As effects on water quality have been considered, there is potential for there to be an in-combination effects with the Upgrade Source O Booster to 25 Ml/d option.
APP/20/01127 APP/20/00990 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[110], August 2021	Havant Borough Council	HRA for the redevelopment of Mill Rythe Holiday Village.	The HRA considers changes to water quality, recreation, construction impacts and habitat loss on: • Solent Maritime SAC • Chichester and Langstone Harbours SPA/Ramsar site. • Solent and Dorset Coast SPA • Solent and Isle of Wight Lagoons SAC • Solent and Southampton Water SPA/ Ramsar site The HRA for the redevelopment concluded there would be and LSE on the water quality of the European sites in the absence of mitigation.	**Yes.** There is potential for an in-combination effect on water quality. The Upgrade Source O Booster to 25 Ml/d option will not alter recreation, habitat loss or have construction impacts from noise and vibration on the European Site; therefore, there is no scope for in-combination effects via these sources
APP/21/01310 Habitats Regulations Assessment (HRA) Screening and	Havant Borough Council	HRA for the change in use of land and woodland as a wedding and events venue, including the use of land as a campsite.	The HRA considers changes to water quality, recreation, noise pollution and habitat loss on: • Solent Maritime SAC	**Yes.** There is potential for an in-combination effect on water quality.

[108] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_249341
[109] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_249340
[110] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_249588

Appropriate Assessment (AA)[111], August 2022			• Chichester and Langstone Harbours SPA/Ramsar site. • Solent and Dorset Coast SPA • Solent and Isle of Wight Lagoons SAC • Solent and Southampton Water SPA/ Ramsar site The HRA for the redevelopment concluded there would be and LSE on the water quality of the European sites in the absence of mitigation.	The Upgrade Source O Booster to 25 Ml/d option will not alter recreation use, habitat loss or noise impacts on the European Site therefore an in-combination effect is not possible.

[111] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_252316

Appendix D. In-Combination Assessment for Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 1) and Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2)

Document Title	Authority	Summary of report details	Summary of the potential for the proposed project/ plan to have an adverse effect on the European sites	LSE in-combination
Habitat Regulations Assessment for the Portsmouth Site Allocations DPD, February 2013	Portsmouth City Council	Subsequent to adoption of Portsmouth's Core Strategy (The Portsmouth Plan) in January 2012, the Council is preparing the Site Allocations Development Plan Document (DPD). This Screening Statement focuses on the Site Allocations DPD.	The report found that Solent Maritime SAC, Chichester and Langstone Harbours SPA and Ramsar, Portsmouth Harbour SPA and Ramsar, and Solent and Southampton Water SPA and Ramsar may be impacted by the Site allocations. Potential impacts includes increasing recreation, disturbance to qualifying features, pollution and habitat loss.	No. There will be no in-combination effect with regard to habitat loss, noise/light pollution, changes to water levels, air pollution, or recreation as the options will not lead to these effects. Whilst the options may impact water chemistry, it is oncsidered unlikely there would be a significant in-combination effect with this project given the distance of the long sea outfall from any of the designated sites.
Hampshire Minerals and Waste Plan Assessment	Hampshire County Council,	The HRA for the Hampshire Minerals and Waste Plan.	The HRA considered Solent Maritime SAC. The effects considered were physical disturbance/loss of habitat, noise and light	No. There will be no in-combination effect with

Document Title	Authority	Summary of report details	Summary of the potential for the proposed project/ plan to have an adverse effect on the European sites	LSE in-combination
Under the Habitats Regulations, July 2013[112]	Portsmouth City Council. New Forest National Park, Southampton City Council and South Downs National Park		pollution, changes to water levels and quality, air pollution, recreation and dust and soil contamination.	regard to habitat loss, noise/light pollution, changes to water levels, air pollution, recreation and dust/soil contamination as the options will not lead to these effects. The Minerals and Waste Plan concluded more detailed information with regard to changes in water quality would be required, however it is considered an in-combination LSE would be unlikely given the large distance between the location of the long-sea outfall and any impacts which may arise from the minerals and waste plan.
HRA of the Revised Portsmotuh Seafront Masterplan, July 2019	Portsmouth City Council	HRA of the Portsmouth City Council seafront masterplan.	Portsmouth Harbour SPA / Ramsar, Chichester and Langstone Harbours SPA / Ramsar, Solent and Southampton Water SPA / Ramsar, Solent Maritime SAC and Solent and Isle of Wight Lagoons SAC were considered in this HRA. The following potential impacts were considered for the European sites: Public access/ disturbance, costal squeeze, fisheries: commercial marine and estuarine, Water pollution, changes in species distribution, climate change, change to site	No. Of the impacts considered, only water pollution is relevant to either of the options. Given the large distance between the outfall and the seafront which will be developed as part of this HRA it is considered unlikely there will be a significant in-combination effect.

[112] https://documents.hants.gov.uk/planning-strategic/HMWPHRARecordFINALSept2013.pdf

Document Title	Authority	Summary of report details	Summary of the potential for the proposed project/ plan to have an adverse effect on the European sites	LSE in-combination
			conditions, invasive species, direct land take from development, biological resource use, change in land management, Inappropriate pest control, air pollution: impact of atmospheric nitrogen deposition, hydrological changes and extraction: Non-living resources.	
Habitat Regulations Assessment of the Portsmouth Local Transport Plan	Portsmouth City Council	HRA for the Portsmouth City Council Local Transport Plan	Potential LSEs from surface water runoff impacts on water quality to Portsmouth Harbour SPA / Ramsar, the Chichester and Langstone Harbours SPA / Ramsar, the Solent and Southampton Water SPA / Ramsar, and the Solent Maritime SAC.	No. Given the long-sea outfall discharge is outside of any European Site and located in a deep channel subject to mixing, it is considered unlikely that there would be a significant effect on any of the European sites in-combination with the options.
Air Quality Habitat Regulations Assessment for Havant Borough Local Plan 2036[113] January 2019	Havant Borough Council	HRA for the Havant Borough Air Quality Plan.	Potential air pollution effects on, Portsmouth Harbour SPA/Ramsar site, Solent and Dorset Coast SPA, Chichester and Langstone Harbours SPA/Ramsar site and Solent Maritime SAC were ruled out as having no effect.	No. The options will not have air quality effects and, therefore, there is no scope for in-combination effects.
Havant Borough Local Plan Habitats Regulations Assessment[114] June 2020	Havant Borough Council	HRA for the Havant Borough Council Local Plan	European sites included in the assessment and potential impacts: • Solent Maritime SAC – habitat loss, atmospheric pollution, coastal squeeze, nutrient neutrality (water quality); • Chichester and Langstone Harbours SPA/Ramsar site – habitat loss, recreational disturbance, coastal	No. The options will not have effects in relation to coastal squeeze, habitat loss, atmospheric pollution or recreational disturbance. Although the Local Plan HRA ruled out any LSE on

[113] https://cdn.havant.gov.uk/public/documents/CD14%20Air%20Quality%20Habitat%20Regulations%20Assessment.pdf
[114] https://cdn.havant.gov.uk/public/documents/HBLP%20HRA%20changes%20June%202020.pdf

Document Title	Authority	Summary of report details	Summary of the potential for the proposed project/ plan to have an adverse effect on the European sites	LSE in-combination
			squeeze, nutrient neutrality (water quality); • Portsmouth Harbour SPA/Ramsar site – recreational disturbance, air quality, water resources, nutrient neutrality (water quality), coastal squeeze, habitat loss.	water quality, there is still potential for in-combination effects on the Chichester and Langstone Harbours SPA/Ramsar site, Portsmouth Harbour SPA/Ramsar site and Solent Maritime SAC with the options. However, this is unlikely to be significant given the discharges will be released from a long sea outfall (over 5 km) into a deep channel subject to mixing..
Habitats Regulations Assessment Langstone Technology Park[115], March 2022	Havant Borough Council	HRA for the outline planning application for the erection of a new employment space.	The HRA considers impacts on Chichester and Langstone Harbours SPA/Ramsar site, Solent and Dorset Coast SPA, Portsmouth Harbour SPA/Ramsar and Solent Maritime SAC. These are disruption, changes in habitat use, and loss of habitats. The HRA concluded there would be no LSE on the European sites.	No. Water quality effects were not considered in the Technology Park HRA. As this is the only feasible impact pathway for the options, in-combination are not considered possible.
Rook Farm, Hayling Island Information to inform Habitats Regulations Assessment[116], October 2021	Havant Borough Council	HRA for outline planning permission for a residential development.	The HRA considers impacts on Solent Maritime SAC and Chichester and Langstone Harbours SPA/Ramsar site. Potential effects considered for Chichester and Langstone Harbours SPA/Ramsar site were: • Recreation pressure; • Loss of supporting habitat;	No. There is potential for the development at Rook Farm and the options to have in-combination effects on the water quality of the European sites. However,

[115] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_252888
[116] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_252459

			• Air quality; • Hydrological regime change; • Eutrophication. Potential effects considered for Solent Maritime SAC were: • Air quality; • Hydrological regime change; • Eutrophication. Potential effects considered for Portsmouth Harbour SPA/Ramsar site were: • Disturbance to qualifying species; • Air quality; • Hydrological regime change; • Pollution of ground/ surface water Potential effects considered for Solent and Dorset Coast SPA were: • Hydrological regime change; • Pollution of ground/ surface water.	this is unlikely to be significant. The options will not have any impacts relating to recreation pressure, loss of supporting habitats or air quality.
APP/21/01259 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[117], February 2022	Havant Borough Council	The HRA for a development comprising of 122 dwellings.	The European sites considered in the HRA: • Chichester and Langstone Harbours SPA/ Ramsar site; • Solent Maritime SAC; • Solent and Dorset Coast SPA; • Portsmouth Harbour SPA/ Ramsar site. The HRA concluded that increases in recreation and changes to water quality would lead to an LSE.	No. There is potential for in-combination effects with regard to changes in water quality, however this is unlikely to be significant once the other project has completed any required mitigation. However, there will be no in-combination effect on the European sites as a result of changes to recreation given the options will not result in changes to recreation levels.

[117] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_252213

Land west of Old Manor Farm, south of Lower Road, Bedhampton. Information for Habitats Regulations Assessment[118], April 2022	Havant Borough Council	HRA for the outline planning application for 43 dwellings.	The HRA considers both Chichester and Langstone Harbours SPA/Ramsar site, Portsmouth Harbour SPA/Ramsar site, Solent and Dorset Coast SPA and Solent Maritime SAC. Impacts considered are loss of habitat, disturbance, impacts on supporting habitats, pollution impacts, water quality, air pollution, coastal squeeze and invasive non-native plant species.	No. The HRA concluded there would be no LSE alone or in combination via all pathways apart from pollution during construction and disturbance. There is potential for there to be an in-combination effect with the project due to changes in water quality however this is unlikely to be significant once the other project has completed any required mitigation..
Land off St Georges Avenue, Havant. Report to Inform Habitats Regulations Assessment Stage 1 and Stage 2[119], June 2021	Havant Borough Council	HRA for the erection of 184 dwellings including associated infrastructure and landscaping.	The HRA considers both Chichester and Langstone Harbours SPA/Ramsar site and Solent Maritime SAC. Impacts pathways considered for the European sites: • Chichester and Langstone Harbours SPA/ Ramsar site – atmospheric pollution, disturbance from recreation, loss/ degradation of supporting habitats and water resources and abstraction; • Solent Maritime SAC – Water resources and abstraction and atmospheric pollution; • Portsmouth Harbour SPA/ Ramsar site – atmospheric pollution and disturbance from recreation.	No. All impact pathways apart from habitat loss, recreation and foul water drainage were ruled out. The option does not have these impact pathways, therefore, there is no scope for in-combination effects.

[118] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_251908
[119] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_251789

Shadow Habitat Regulations Assessment. Land north of Long Copse Lane, Emsworth[120], March 2022	Havant Borough Council	HRA for the outline planning application for the demolition of the existing buildings and erection of a new residential scheme.	The European sites considered in the HRA: • Chichester and Langstone Harbours SPA/ Ramsar site; • Solent Maritime SAC; • Portsmouth Harbour SPA/ Ramsar site. The impact pathways identified were; • Pollution to groundwater and water resources; • Atmospheric pollution; • Recreational pressure; • Ecosystem modifications (loss or degradation of supporting habitats).	No. The option will not cause atmospheric pollution, recreation or impact supporting habitats. Therefore, in-combination effects for these pathways are not possible. The Shadow HRA considered pollution impacts in relation to the European sites. It was concluded there would be no LSE, given this HRA has concluded that both options will not have a LSE it is considered that an in-combination LSE is unlikely.
Southmere Field, Langstone Road, Langstone Havant. Shadow Habitat Regulations Assessment[121], July 2021	Havant Borough Council	HRA for the outline planning application for the construction of 65 dwellings and associated works.	The HRA considers Chichester and Langstone Harbours SPA/Ramsar site, Solent, Solent and Isle of Wight Lagoons SAC, Solent and Dorset Coast SPA and Solent Maritime SAC. The potential effects considered are: • Pollution to ground water and surface water; • Change in nitrogen output; • Recreational activities; • Impacts on functionally linked land. The HRA concluded that there would be no LSE on Solent and Isle of Wight Lagoons SAC as a result of the project.	No. The options will not have effects relating to nitrogen output, recreation or impacts on functionally linked land. Therefore, in-combination impacts are not possible with respect to these effects. The Southmere Field HRA concludes that there will be LSE in relation to pollution of surface water during construction, given the temporal separation between the options commencing and the commencement of building

[120] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_251575
[121] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_251054

				works it is considered unlikely there will be an in-combination effect.
Forty Acres Farm, Havant. Report to Inform Habitats Regulations Assessment Stage 1 and Stage 2[122], May 2021	Havant Borough Council	Re-plan part of the residential area of the site to facilitate an additional 34 new homes within the development area to create a total 147 dwellings, inclusive of the additional 34 units.	European sites and potential impact pathways considered: • Chichester and Langstone Harbours SPA/ Ramsar site – construction activity (noise and pollution from dust), water resources, loss of supporting habitats, disturbance from recreation and atmospheric pollution; • Portsmouth Harbour SPA/Ramsar – atmospheric pollution, disturbance from recreation and loss of supporting habitats; • Solent Maritime SPA - construction activity (noise and pollution from dust), water resources, loss of supporting habitats, from recreation and atmospheric pollution.	No. The options will not have effects relating to loss of supporting habitats, construction related noise, fugitive dust, disturbance from recreation and atmospheric pollution. The options will not result in surface water run off or changes to foul drainage. Therefore, in-combination impacts are not feasible.
Cottage Farm, Lovedean. Report to Inform Habitats Regulations Assessment Stage 1 and Stage 2[123], January 2021	Havant Borough Council	HRA for the construction of 43 dwellings with associated landscaping and road infrastructure.	The HRA considers the Solent Maritime SAC, Solent and Isle of Wight Lagoons SAC, Portsmouth Harbour SPA/Ramsar site and Chichester and Langstone Harbours SPA/Ramsar site. The only potential pathway considered was the release of nutrient outputs resulting from changing land use.	No. The options have the potential to result in changes to water quality, however given the timing of the options (not expected to commence until late 2040) an in-combination effect is considered unlikely.
Sinah Lane, Hayling Island. Information to Inform Habitats Regulations	Havant Borough Council	HRA for the construction of 195 dwellings and associated landscaping.	The HRA considers Chichester and Langstone Harbours SPA/Ramsar site. The impact pathways include disturbance from recreation, water pollution, changes in	No. The Sinah Lane HRA considered impacts in relation to water pollution

[122] https://planningpublicaccess.havant.gov.uk/online-applications/files/5AE6C40F63E8DE7A64835C64D3C6701C/pdf/APP_21_00605-REPORT_TO_INFORM_HABITATS_REGULATIONS_ASSESSMENT_STAGE_1_AND_2-1493297.pdf
[123] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_250280

Assessment[124], November 2020			species distributions, air pollution and impacts on supporting habitats.	and concluded there would no LSE. Given the timing of the options (not expected to commence until late 2040) an in-combination effect is considered unlikely. The option will not impact supporting habitats, air pollution, species distributions or increase disturbance from recreation.
APP/20/00933 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[125], October 2020.	Havant Borough Council	HRA for the demolition of an existing retail unit (no. 9 East Street) and construction of 10 no. supported living units.	The HRA considers impacts on water quality and increased recreation on Solent Maritime SAC, Solent and Isle of Wight Lagoons SAC, Solent and Dorset Coast SPA and Chichester and Langstone Harbours SPA/Ramsar site.	No. The HRA for the APP/20/00933 planning application concludes there will be no adverse effect on water quality as a result of the development, in addition given the timing of the options in late 2040 it is unlikely an in-combination effect will occur. The options will not result in changes to recreation, therefore, no in-combination effect is likely for this effect.
Cottage Farm, Lovedean. Report to Inform Habitats Regulations Assessment Stage 1 and Stage 2, May 2020[126]	Havant Borough Council	HRA for the construction of 56 dwellings with associated landscaping and road infrastructure.	The HRA considers changes in nutrient outputs on Solent Maritime SAC, Solent and Isle of Wight Lagoons SAC, Solent and Dorset Coast SPA and Chichester and Langstone Harbours SPA/Ramsar site.	No. Given the timing of the options with respect to this development, it is considered unlikely that there will be a significant in-combination effect.

[124] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_249519
[125] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_249239
[126] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_248270

APP/20/00441 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[127], September 2021.	Havant Borough Council	HRA for an outline planning application for the development of 100 dwellings and associated access improvements and landscaping.	The HRA considers changes to water quality and recreation pressures on Solent Maritime SAC, Portsmouth Water SPA/Ramsar, Solent and Dorset Coast SPA, Solent and Isle of Wigth Lagoons SAC and Chichester and Langstone Harbours SPA/Ramsar site.	No. The options will not result in changes to recreation, therefore, an in-combination effect is not possible. The HRA for the outline planning application also considered effects on water quality, given the timing of the options with respect to this development, it is considered unlikely that there will be a significant in-combination effect.
APP/20/00363 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[128], September 2021.	Havant Borough Council	HRA for the demolition of the existing structure and construction of a building with 20 apartments.	The HRA considers changes to water quality and recreation pressures on Solent Maritime SAC, Solent and Dorset Coast SPA, Solent and Isle of Wight Lagoons SAC, Portsmouth Harbour SPA/Ramsar and Chichester and Langstone Harbours SPA/Ramsar site.	No. The option will not result in changes to recreation; therefore, there is no scope for an in-combination effect. The HRA for the outline planning application also considered effects on water quality, however, given the timing of the options in late 2040 and the large volume of water between the outfall and the development and in-combination effect is considered unlikely.
APP/20/00251 Habitats Regulations Assessment (HRA) Screening and	Havant Borough Council	HRA for the construction of 29 apartments, commercial units and demolition of existing retail development.	The HRA considers changes to water quality and recreation pressures on Solent Maritime SAC, Solent and Dorset Coast SPA, Solent and Isle of Wight Lagoons SAC, Portsmouth	No. The options will not result in changes to recreation; therefore, there is no scope for an in-combination effect.

[127] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_248241
[128] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_248058

Appropriate Assessment (AA)[129], September 2020.			Harbour SPA/Ramsar and Chichester and Langstone Harbours SPA/Ramsar site.	Whilst the HRA indicates mitigation is required for the LSE on water quality, the distance from the long sea outfall to the location of this development, combined with the timing of the options in late 2040 makes an in-combination effect unlikely.
Land off Solent Road, Havant Information specific to a Habitats Regulations Assessment pursuant to Regulation 63 of The Conservation of Habitats and Species Regulations 2017[130], October 2021	Havant Borough Council	HRA for the proposed Portsmouth Water Headquarters building, widened access onto Solent Road and associated car parks and landscaping.	The HRA considers impacts of habitat loss and water quality on Solent Maritime SAC and Chichester and Langstone Harbours SPA/Ramsar site.	No. The HRA concluded there would be no effect on the European sites.
Harts Farm Way, Havant Habitats Regulations Assessment[131], November 2021	Havant Borough Council	HRA for the outline planning application for the development of new employment units, with associated car parking, drainage works and landscaping.	The HRA considers impacts on connectivity, air quality, disturbance, water quality and hydrology on Chichester and Langstone Harbours SPA/Ramsar site.	No. Whilst the HRA indicates mitigation is required for the LSE on water quality, the distance from the long sea outfall to the location of this development, combined with the timing of the options in late 2040 makes an in-combination effect unlikely. The options will not effect air quality, disturbance or hydrology.
APP/20/00761 Habitats Regulations Assessment (HRA) Screening and	Havant Borough Council	HRA for the construction of a 64 bed care home, with new access road, car	The HRA considers changes to water quality and recreation pressures on Solent Maritime	No. The options will not result in changes to recreation;

[129] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_247889
[130] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_251001
[131] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_250174

Appropriate Assessment (AA)[132], October 2020		parking, drainage works and landscaping.	SAC and Chichester and Langstone Harbours SPA/Ramsar site.	therefore, there is no scope for an in-combination effect. Whilst the HRA indicates mitigation is required for the LSE on water quality, the distance from the long sea outfall to the location of this development, combined with the timing of the options in late 2040 makes an in-combination effect unlikely.
APP/20/00991 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[133], April 2021	Havant Borough Council	HRA for the outline planning application for the construction of a new pipeline to transfer water from Source B2 to fill the reservoir.	The HRA considers changes to water quality on Solent Maritime SAC, Solent and Dorset Coast SPA and Chichester and Langstone Harbours SPA/Ramsar site. The HRA for the outline planning application concluded LSE at screening.	No. Whilst the HRA indicates mitigation is required for the LSE on water quality, the distance from the long sea outfall to the location of this development, combined with the timing of the options in late 2040 makes an in-combination effect unlikely.
APP/20/00990 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[134], April 2021	Havant Borough Council	HRA for the development of a reservoir for raw water storage and pumped water storage.	The HRA considers changes to water quality on Solent Maritime SAC, Solent and Dorset Coast SPA and Chichester and Langstone Harbours SPA/Ramsar site. The HRA for the outline planning application concluded LSE at screening	No. Whilst the HRA indicates mitigation is required for the LSE on water quality, the distance from the long sea outfall to the location of this development, combined with the timing of the options in late 2040 makes an in-combination effect unlikely.

[132] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_248910
[133] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_249341
[134] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_249340

APP/20/01127 APP/20/00990 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[135], August 2021	Havant Borough Council	HRA for the redevelopment of Mill Rythe Holiday Village.	The HRA considers changes to water quality, recreation, construction impacts and habitat loss on Solent Maritime SAC and Chichester and Langstone Harbours SPA/Ramsar site. The HRA for the redevelopment concluded there would be and LSE on the water quality of the European sites in the absence of mitigation.	No. Whilst the HRA indicates mitigation is required for the LSE on water quality, the distance from the long sea outfall to the location of this development, combined with the timing of the options in late 2040 makes an in-combination effect unlikely. The options will not alter recreation, habitat loss or have construction impacts from noise and vibration on the European Site; therefore; there is no scope for in-combination effects via these sources
APP/21/01310 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[136], August 2022	Havant Borough Council	HRA for the change in use of land and woodland as a wedding and events venue, including the use of land as a campsite.	The HRA considers changes to water quality, recreation, noise pollution and habitat loss on Solent Maritime SAC, Portsmouth Harbour SPA/Ramsar, Solent and Isle of Wight Lagoons SAC, Solent and Dorset Coast SPA and Chichester and Langstone Harbours SPA/Ramsar site. The HRA for the redevelopment concluded there would be and LSE on the water quality of the European sites in the absence of mitigation.	No. Whilst the HRA indicates mitigation is required for the LSE on water quality, the distance from the long sea outfall to the location of this development, combined with the timing of the options in late 2040 makes an in-combination effect unlikely. The options will not alter recreation use, habitat loss or noise impacts on the European Site therefore an in-combination effect is not possible.

[135] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_249340
[136] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_252316

Appendix E. Inter-company In-combination Effects Results

European Sites potentially affected	SWS Option	Year selected	Summary of potential effects	Portsmouth Water Option potentially acting 'in-combination'	In-combination effect?
Chichester and Langstone Harbours SPA/ Ramsar site	Recycling (HSE): Recharge of Havant Thicket reservoir from Budds Farm (60Ml/d)	2039	Construction effects avoidable with established mitigation measures; only exposed to operational effects from Budds Farm recycling so in-combination effects between SW options will not occur.	Upgrade Source O Booster to 25 Ml/d (2039-2040)	**Yes** Scope for in-combination effects, due to similar delivery timeframes and impact pathways (construction impacts), but any impact not considered to be significant.
	Bulk export (SNZ): Pulborough to Havant Thicket Reservoir (20Ml/d)	2039		Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2) (2048-2049)	**No** There is considered to be no scope for in-combination effects. The pathway assessed was potential changes in water chemistry from discharge into the Solent and this option relates to recharging Havant Thicket reservoir.
	Bulk export (SNZ): Pulborough to Havant Thicket Reservoir (50Ml/d)	2039			
Chichester and Langstone Harbours Ramsar site	Bulk import (HSE): Havant Thicket Reservoir to Otterbourne WSW pipeline - both sections	2039	Construction effects avoidable with established mitigation measures; only exposed to operational effects from Budds Farm recycling so in-combination effects between SW options will not occur. This option has been subject to project level design and investigations through the SRO gated process. These assessments	Upgrade Source O Booster to 25 Ml/d (2039-2040)	**Yes** In-combination effects during construction considered unlikely despite similar delivery timeframes due to controls in place. Without details of the operational effects and as Budds Farm has a discharge into The Solent, the effect of

European Sites potentially affected	SWS Option	Year selected	Summary of potential effects	Portsmouth Water Option potentially acting 'in-combination'	In-combination effect?
			have concluded that adverse effects will not occur as a result of the option, subject to the implementation of mitigation measures, the HRA of the WRMP necessarily reflects this.		combined operational impacts is uncertain and cannot be discounted.
				Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2) (2046-2047)	**No** There is considered to be no scope for in-combination effects. The pathway assessed was potential changes in water chemistry from discharge into The Solent.
Solent and Dorset Coast SPA	Interzonal transfer (HWZ-HAZ): Crabwood to Andover uni-directional (15Ml/d)	2030	The SPA is an ultimate down-catchment receptor for a number of options, although the interest and qualifying features of the site have a low sensitivity to construction in most terrestrial habitats, and construction-related in combination effects can be avoided with normal project-level measures.	Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2) (2048-2049)	**No** There is considered to be no scope for in-combination effects due to the differing delivery timeframes. The SWS options have been selected earlier. Furthermore, SWS options have largely been assessed for construction impacts, whilst the pathway assessed for the Portsmouth Water options is potential changes in water chemistry from discharge into The Solent during operation.
	Interzonal transfer (HSE-HWZ): Otterbourne WSW to Yew Hill bi-directional (74Ml/d)	2030			
	Groundwater (HSW): Test MAR (5.5Ml/d)	2030			
	Interzonal transfer (HSW-HRZ): Romsey Town and Broadlands valve (3.1Ml/d)	2035			
	Recycling (HSE): Recharge of Havant Thicket reservoir from Budds Farm (60Ml/d)	2025			
	Bulk export (SNZ): Pulborough to Havant Thicket Reservoir (20Ml/d)	2029			

European Sites potentially affected	SWS Option	Year selected	Summary of potential effects	Portsmouth Water Option potentially acting 'in-combination'	In-combination effect?
	Bulk export (SNZ): Pulborough to Havant Thicket Reservoir (50Ml/d)	2039			
	Bulk import (HSE): Havant Thicket Reservoir to Otterbourne WSW pipeline - both sections	2039			
	Interzonal transfer (HSW-HSE): River Test WSW to Otterbourne WSW (45Ml/d)	2039			
	Groundwater (HSW): Test MAR (5.5Ml/d)	2050			
	Interzonal transfer (HSW-HRZ): Romsey Town and Broadlands valve (3.1Ml/d)	2035			
	Recycling (HSE): Recharge of Havant Thicket reservoir from Budds Farm (60Ml/d)	2025			
	Recycling (IOW): Sandown WTW (8.5Ml/d)	2030	The SPA is an ultimate down-catchment receptor for a number of options, although the interest and qualifying features of the site have a low sensitivity to construction in most terrestrial habitats, and construction-related in combination effects can be avoided with normal project-level measures. With regard to operation, only Sandown Recycling and Arun Desalination have the potential to adversely affect the site (both no adverse effects alone); these	Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2) (2048-2049)	**Yes** Scope for in-combination effects during operation as all result in discharge into The Solent, which could affect foraging tern habitat. However, all options are located outside the SPA boundary and given it's a dynamic, high dispersion environment and discharges will be subject to controls, even in-combination effects
	Desalination (SWZ): Tidal River Arun (20Ml/d)	2027			
	Desalination (SWZ): Tidal River Arun (20Ml/d) Phase 2	2044			

European Sites potentially affected	SWS Option	Year selected	Summary of potential effects	Portsmouth Water Option potentially acting 'in-combination'	In-combination effect?
			options will not result in environmental changes that will overlap to cause spatially coincident additive effects, and the alone effects will be too small to cumulatively affect the integrity of the site or its value to foraging terns.		are unlikely to be significant but cannot be discounted.
	Desalination (SWZ): Tidal River Arun (20Ml/d) 2046 Desalination (SWZ): Tidal River Arun (20Ml/d) Phase 2	2046 2046	European sites screened in for Source O sources are only being assessed against operational impacts. SWS options with operational effects on the SAC are listed here. The desalinations have a low risk of brine discharge during operation, which is considered unlikely to combine with effects from changes in abstraction from sources associated with Source O.	Upgrade Source O Booster to 25 Ml/d (2039-2040) (and groundwater sources)	No The scope for in-combination effects is considered to be limited, especially as Source O will only be operational in periods of drought.
Solent Maritime SAC	Bulk import (HSE): PWC Source A to Otterbourne WSW (21Ml/d)	2029	The SAC is the downstream receptor for a number of schemes that may result in environmental changes associated with construction; however, the majority of these schemes are unlikely to occur in the same timescale, and effects can be reliably avoided with established mitigation measures. With regard to operational effects, two options (Testwood MAR and Timsbury) will have no significant	Upgrade Source O Booster to 25 Ml/d (2039-2040)	**Yes** In-combination effects during construction considered unlikely despite similar delivery timeframes due to controls in place. Without details of the operational effects and as Budds Farm has a discharge into The Solent, the effect of combined operational
	Interzonal transfer (HSW-HRZ): Romsey Town and Broadlands valve (3.1Ml/d)	2025			
	Recycling (HSE): Recharge of Havant Thicket reservoir from Budds Farm (60Ml/d)	2027			
	Bulk export (SNZ): Pulborough to Havant Thicket Reservoir (20Ml/d)	2029			

European Sites potentially affected	SWS Option	Year selected	Summary of potential effects	Portsmouth Water Option potentially acting 'in-combination'	In-combination effect?
	Bulk export (SNZ): Pulborough to Havant Thicket Reservoir (50Ml/d)	2039	effects due to technical aspects of the option (i.e. for the European site to be affected the option would not be operating as required/ intended). Furthermore, the anticipated zones of environmental change associated with the other option with operational pathways (Budds Farm) will not overlap spatially, so geographically coincident in combination effects will not occur; it should be noted that on-going investigative work for the Budds Farm SRO gated process indicates that this site will not be adversely affected. Consequently, adverse effects on integrity in combination are not therefore anticipated.		impacts is uncertain and cannot be discounted.
	Bulk import (HSE): Havant Thicket Reservoir to Otterbourne WSW pipeline - both sections	2039			
	Interzonal transfer (HSW-HSE): River Test WSW to Otterbourne WSW (45Ml/d)	2039		Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2) (2048-2049)	**No** There is considered to be no scope for in-combination effects due to the differing delivery timeframes. The SWS options have been selected earlier. Furthermore, SWS options have largely been assessed for construction impacts, whilst the pathway assessed for the Portsmouth Water options is potential changes in water chemistry from discharge into The Solent during operation.
	Groundwater (HSW): Test MAR (5.5Ml/d)	2035			
Solent and Isle of Wight Lagoons SAC	Groundwater (IOW): New boreholes at Eastern Yar3 (1.5Ml/d)	2036	Only one unit of the SAC is potentially exposed to environmental changes as a result of options in the WRMP, the lagoons located near Harbour Farm at Brading Marshes. Two options may potentially affect the Yar (Sandown Recycling and Knighton Boreholes), which has some hydrological connectivity with the	Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2) (2048-2049)	**No** There is considered to be no scope for in-combination effects due to the differing delivery timeframes. The SWS options have been selected earlier. Furthermore, the Portsmouth Water option has ben assessed for potential
	Bulk export (SNZ): Pulborough to Havant Thicket Reservoir (20Ml/d)	2039			
	Bulk export (SNZ): Pulborough to Havant Thicket Reservoir (50Ml/d)	2039			

European Sites potentially affected	SWS Option	Year selected	Summary of potential effects	Portsmouth Water Option potentially acting 'in-combination'	In-combination effect?
	Bulk import (HSE): Havant Thicket Reservoir to Otterbourne WSW pipeline - both sections	2039	Harbour Farm lagoons. However, this connectivity is limited by the seawall around Brading Marshes. In summary, two of the lagoons are seawater-dominated, and essentially have salinities similar to seawater. The other two lagoons receive freshwater input from Brading Marshes and are hence brackish or low-salinity, but the water levels in Brading Marshes are largely controlled through direct management (sluices etc.) with some inundation occurring when the river is tidally locked, and so are not directly dependent on flows etc. within the Yar. As a result, adverse effects are not anticipated as a result of operation of either option in combination.		changes in water chemistry from discharge into The Solent during operation and will not affect the lagoons located near Harbour Farm at Brading Marshes within the SAC.
	Recycling (HSE): Recharge of Havant Thicket reservoir from Budds Farm (60Ml/d)	2039			
	Bulk export (SNZ): Pulborough to Havant Thicket Reservoir (20Ml/d)	2029			
	Bulk export (SNZ): Pulborough to Havant Thicket Reservoir (50Ml/d)	2039			
	Recycling (IOW): Sandown WTW (8.5Ml/d)	2028	Water recycling considered unlikely to have an in-combination effect with Source O when in operation as it will not affect groundwater sources.	Upgrade Source O Booster to 25 Ml/d (2039-2040) (and groundwater sources)	**No.** In-combination effects considered unlikely.
	Groundwater (IOW): New boreholes at Newchurch (LGS) (1.9Ml/d)	2040	Additional groundwater sources may act in-combination with Source O during operation.		**Yes.** Further assessment required to confirm scope for in-combination effects.
Portsmouth Harbour SPA/ Ramsar site	Bulk import (HSE): Havant Thicket Reservoir to Otterbourne WSW pipeline - both sections	2039	Portsmouth Harbour is potentially exposed to environmental changes associated with two options, the	Works A treatment capacity increase to treat water from	**Yes** Without details of the operational effects and as

European Sites potentially affected	SWS Option	Year selected	Summary of potential effects	Portsmouth Water Option potentially acting 'in-combination'	In-combination effect?
	Recycling (HSE): Recharge of Havant Thicket reservoir from Budds Farm (60Ml/d)	2039	transfer between Havant Thicket and Otterbourne (construction only) and the Budds Farm Recycling scheme. These options have been subject to project level design and investigations through the SRO gated process, which provides the best available environmental data and assessment for the option. In summary, these assessments indicate that adverse effects will not occur as a result of the option, subject to the implementation of mitigation measures identified through the SRO gated process, and the HRA of the WRMP necessarily reflects this.	Havant Thicket Reservoir (Phase 2) (2048-2049)	Budds Farm has a discharge into The Solent, the effect of combined operational impacts is uncertain and cannot be discounted. There are considered to be no scope for in-combination construction effects due to the differing delivery timeframes; the SWS options have been selected earlier.
Kingley Vale SAC	Bulk export (SNZ): Pulborough to Havant Thicket Reservoir (20Ml/d)	2039	The SAC is only potentially exposed to one construction element (i.e. same pipeline used for two options); effects avoidable with established measures.	Upgrade Source O Booster to 25 Ml/d (2039-2040)	**No** Given the distance of the Portsmouth Water option and avoidance of effects with mitigation for the SWS options, significant combined effects are considered highly unlikely.
	Bulk export (SNZ): Pulborough to Havant Thicket Reservoir (50Ml/d)	2039			
Arun Valley SAC, SPA and Ramsar site	Recycling (SNZ): Horsham WTW with storage at Pulborough (6.8Ml/d)	2068	Water recycling, imports, transfers and desalination are not considered likely to combine with any potential optional effects from reduced or increased abstraction at Source O	Upgrade Source O Booster to 25 Ml/d (2039-2040) (and groundwater sources)	**No** It is considered unlikely that there will be in-combination effects on the European Sites.
	Recycling (SNZ): Littlehampton WTW (18Ml/d)	2031			

European Sites potentially affected	SWS Option	Year selected	Summary of potential effects	Portsmouth Water Option potentially acting 'in-combination'	In-combination effect?
	Bulk import (SNZ): SEW RZ5 to Pulborough (10Ml/d)	2040	groundwater sources during operation.		
	Desalination (SWZ): Tidal River Arun (20Ml/d)	2046			
	Desalination (SWZ): Tidal River Arun (20Ml/d) Phase 2	2046			
	Storage (SNZ): Western Rother licence and storage programme	2040			
	Bulk export (SNZ): Pulborough to Havant Thicket Reservoir (50Ml/d)	2041	Changes to groundwater and surface water levels during operation may act in-combination with other abstractions and exports.		**Yes.** Scope for combined effects on groundwater sources that will need to be investigated.
	Groundwater (SNZ): New borehole at Petworth (4Ml/d)	2045			
	Interzonal transfer (SNZ-SWZ): Pulborough to SWZ (30Ml/d)	2040			
Solent and Southampton Water SPA and Ramsar site	Interzonal transfer (HAZ-HKZ): Andover to Kingsclere - reversible (10Ml/d)	2040	Transfers, new boreholes and exports may result in changes to groundwater and surface water levels during operation that may acti in-combination	Upgrade Source O Booster to 25 Ml/d (2039-2040) (and groundwater sources)	**Yes.** Scope for combined effects on groundwater sources that will need to be investigated.
	Interzonal transfer (HSE-HWZ): Otterbourne WSW to Yew Hill bi-directional (74Ml/d)	2031			
	Groundwater (HRZ): New boreholes at Romsey (4.8Ml/d)	2042			
	Groundwater (HSW): Test MAR (5.5Ml/d)	2042			
	Groundwater (IOW): New boreholes at Newchurch (LGS) (1.9Ml/d)	2040			

European Sites potentially affected	SWS Option	Year selected	Summary of potential effects	Portsmouth Water Option potentially acting 'in-combination'	In-combination effect?
	Bulk export (SNZ): Pulborough to Havant Thicket Reservoir (50Ml/d)	2041			
	Interzonal transfer (HSW-HSE): River Test WSW to Otterbourne WSW (45Ml/d)	2031			
	Storage (SNZ): Western Rother licence and storage programme	2040	Storage and imports are not considered likely to combine with any potential optional effects from reduced or increased abstraction at Source O groundwater sources during operation.		**No** It is considered unlikely that there will be in-combination effects on the European Sites.
	Bulk import (HSE): T2ST to HSE (120Ml/d)	2040			

Appendix F. Appropriate Assessment

Table F-1 provides the AA of the Source O Booster option that was found to have an LSE or uncertain effects on one or more European sites. Table F-2 provides the AA for Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2), which was brought forward to AA following the inter-company in-combination assessment. Only those European sites that may be affected have been brought forward to AA and the potential for adverse effects on site integrity are considered in light of the conservation objectives and with respect to potential avoidance and mitigation measures. Where applicable, it may be stated that further assessment is required to enable conclusions to be drawn, or that specific impacts will need to be designed out.

Table F-1. HRA Stage 2 AA for Upgrade Source O Booster to 25 Ml/d (PRT_PRT_HI ROC_ALL_ALL_source o booster), including sources

European Site, Qualifying Features and approximate distance from the option	Conservation objectives	Mitigation	Appropriate Assessment	Adverse Effects on Site Integrity?
Solent Maritime SAC (approximately 3 km south) Annex I habitats that are a primary reason for selection of this site: • 1130 Estuaries; • 1320 Spartina swards (*Spartinion maritima*); • 1330 Atlantic salt meadows (*Glauco-Puccinellietalia martitmae*). 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; • 1140 Mudflats and sandflats not covered by seawater at low tide;	Maintain or restore the extent and distribution of qualifying natural habitats and habitats of qualifying species Maintain or restore the structure and function (including typical species) of qualifying natural habitats Maintain or restore the structure and function of the habitats of qualifying species Maintain or restore the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely	Construction: • Follow construction best practice with regard to the environment, e.g. follow CIRIA Guidance[1] and Guidance on Pollution Prevention (GPPs)[2]; • Consider use of alternative	No changes in the groundwater table are expected as part of the option, as there will be no increase in abstraction. Construction best practice measures to control localised impacts from dust, vehicle emissions and other potential sources of pollution are required due to the hydrological connectivity to the SAC.	No adverse effects.

European Site, Qualifying Features and approximate distance from the option	Conservation objectives	Mitigation	Appropriate Assessment	Adverse Effects on Site Integrity?
• 1150 Coastal lagoons * Priority feature; • 1210 Annual vegetation of drift lines; • 1220 Perennial vegetation of stony banks; • 1310 Salicornia and other annuals colonizing mud and sand; • 2120 "Shifting dunes along the shoreline with *Ammophila arenaria* (""white dunes"")". Annex II species present as a qualifying feature, but not a primary reason for site selection: • 1016 Desmoulin's whorl snail (*Vertigo moulinsiana).*	Maintain or restore the populations of qualifying species	methods of construction where these may avoid or minimise any impact, e.g., directional drilling.		
Chichester and Langstone Harbours SPA (approximately 3 km south) ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: • *Sterna albifrons;* • *Sterna hirundo;* • *Sterna sandvicensis.* Over winter the area regularly supports: • *Limosa lapponica*. ARTICLE 4.2 QUALIFICATION (79/409/EEC) Over winter the area regularly supports:	Maintain or restore the extent and distribution of the habitats of the qualifying features Maintain or restore the structure and function of the habitats of the qualifying features Maintain or restore the supporting processes on which the habitats of the qualifying features rely Maintain or restore the population of each of the qualifying features.	Construction: • Follow construction best practice with regard to the environment, e.g. follow CIRIA Guidance[1] and Guidance on Pollution Prevention (GPPs)[2];	No changes in the groundwater table are expected as part of the option, as there will be no increase in abstraction. Construction best practice measures to control localised impacts from dust, vehicle emissions and other potential sources of pollution are required due to the hydrological connectivity to the SPA.	No adverse effects.

European Site, Qualifying Features and approximate distance from the option	Conservation objectives	Mitigation	Appropriate Assessment	Adverse Effects on Site Integrity?
• *Anas acuta;* • *Anas clypeata;* • *Anas crecca;* • *Anas penelope;* • *Arenaria interpres;* • *Branta bernicla bernicla;* • *Calidris alba;* • *Calidris alpina alpina;* • *Charadrius hiaticula;* • *Mergus serrator;* • *Numenius arquata;* • *Pluvialis squatarola;* • *Tadorna tadorna;* • *Tringa totanus.* ARTICLE 4.2 QUALIFICATION (79/409/EEC): AN INTERNATIONALLY IMPORTANT ASSEMBLAGE OF BIRDS Over winter the area regularly supports: 93230 waterfowl (5 year peak mean 1991/92-1995/96) Including: *Branta bernicla bernicla, Tadorna tadorna, Anas penelop , Anas crecca, Anas acuta, Anas clypeata, Mergus serrator, Charadrius hiaticula, Pluvialis squatarola, Calidris alba, Calidris alpina alpina , Limosa lapponica, Numenius arquata, Tringa totanus, Arenaria interpres.* See Appendix A for full details.	Maintain or restore the distribution of the qualifying features within the site	• Consider use of alternative methods of construction where these may avoid or minimise any impact, e.g., directional drilling.		

European Site, Qualifying Features and approximate distance from the option	Conservation objectives	Mitigation	Appropriate Assessment	Adverse Effects on Site Integrity?
Chichester and Langstone Harbours Ramsar site (approximately 3 km south) <u>Ramsar Criterion 1</u> Two large estuarine basins linked by the channel which divides Hayling Island from the main Hampshire coastline. The site includes intertidal mudflats, saltmarsh, sand and shingle spits and sand dunes. <u>Ramsar Criterion 5</u> Assemblages of international importance: Species with peak counts in winter: • 76480 waterfowl (5 year peak mean 1998/99-2002/2003). <u>Ramsar Criterion 6</u> Species/populations occurring at levels of international importance. Qualifying Species/populations (as identified at designation): Species with peak counts in spring/autumn: • Ringed plover, *Charadrius hiaticula*; • Black-tailed godwit, *Limosa limosa islandica*; • Common redshank, *Tringa totanus totanus.* Species with peak counts in winter: • Dark-bellied brent goose, *Branta bernicla bernicla*; • Common shelduck, *Tadorna tadorna*; • Grey plover, *Pluvialis squatarola*;	There are no conservation objectives for the Ramsar site, the conservation objectives for the SPA have been used.	Construction: • Follow construction best practice with regard to the environment, e.g. follow CIRIA Guidance[1] and Guidance on Pollution Prevention (GPPs)[2]. • Consider use of alternative methods of construction where these may avoid or minimise any impact, e.g., directional drilling.	No changes in the groundwater table are expected as part of the option, there will be no increase in abstraction. Construction best practice measures to control localised impacts from dust, vehicle emissions and other potential sources of pollution are required due to the hydrological connectivity to the Ramsar site.	No adverse effects.

European Site, Qualifying Features and approximate distance from the option	Conservation objectives	Mitigation	Appropriate Assessment	Adverse Effects on Site Integrity?
• Dunlin, *Calidris alpina alpina*. See Appendix A for full details.				
River Meon pSAC (closest point approximately 0.07 km north of Source H source) Annex I habitats that are a primary reason for selection of this site: • 3260 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation. Annex II species that may be a reason for selection of this site: • 1044 Southern damselfly *Coenagrion mercuriale* • 1163 Bullhead *Cottus gobio* • 1092 White-clawed (or Atlantic stream) crayfish *Austropotamobius pallipes* • 1096 Brook lamprey *Lampetra planeri* • 1106 Atlantic salmon *Salmo salar* • 1355 Otter *Lutra lutra*	Maintain or restore the extent and distribution of qualifying natural habitats and habitats of qualifying species Maintain or restore the structure and function (including typical species) of qualifying natural habitats Maintain or restore the structure and function of the habitats of qualifying species Maintain or restore the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely Maintain or restore the populations of qualifying species Maintain or restore the distribution of qualifying species within the site	Modelling suggests that there is potential to partially rebalance abstractions with spare licence capacity. Further modelling and assessment required.	The Source O booster will only be operational and redistribute water in a drought scenario. However, it is reasonable to assume that increased abstraction from nearby groundwater sources could reduce water levels in the River Meon and subsequently result in negative effects on aquatic habitats and species.	Potential for adverse effects. However, it is considered likely that adverse effects can be avoided given the timeframe before the option becomes operational and with appropriate resource planning.
River Itchen SAC (closet point approximately 5 km west of Source D) Annex I habitats that are a primary reason for selection of this site:	Maintain or restore the extent and distribution of qualifying natural habitats and habitats of qualifying species	Modelling suggests that there is potential to partially rebalance abstractions with spare licence capacity.	The Source O booster will only be operational and redistribute water in a drought scenario. Given the distance of the source	Potential for adverse effects. However, it is considered likely that adverse

European Site, Qualifying Features and approximate distance from the option	Conservation objectives	Mitigation	Appropriate Assessment	Adverse Effects on Site Integrity?
• 3260 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation. Annex II species that are a primary reason for selection of this site: • 1044 Southern damselfly *Coenagrion mercuriale* • 1163 Bullhead *Cottus gobio* Annex II species present as a qualifying feature, but not a primary reason for site selection • 1092 White-clawed (or Atlantic stream) crayfish *Austropotamobius pallipes* • 1096 Brook lamprey *Lampetra planeri* • 1106 Atlantic salmon *Salmo salar* • 1355 Otter *Lutra lutra*	Maintain or restore the structure and function (including typical species) of qualifying natural habitats Maintain or restore the structure and function of the habitats of qualifying species Maintain or restore the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely Maintain or restore the populations of qualifying species	Further modelling and assessment required.	from the River Itchen, it is likely that the impacts of increased abstraction would be reduced. However, this would need to be confirmed by a hydrologist and in-combination effects considered. Therefore, adverse effects cannot be ruled out at this stage. It is considered reasonable to assume that by the time the Source O option becomes operational (2033-34), local supply can be adjusted to minimise effects on the SAC.	effects can be avoided given the timeframe before the option becomes operational and with appropriate resource planning.
Solent and Southampton Water SPA (closest point approximately 6.3 km south of Source D source) ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: • *Larus melanocephalus;* • *Sterna albifrons;* • *Sterna dougallii;* • *Sterna hirundo;*	Maintain or restore the extent and distribution of the habitats of the qualifying features Maintain or restore the structure and function of the habitats of the qualifying features Maintain or restore the supporting processes on which the habitats of the qualifying features rely	N/A	Although there is a potential hydrological link to the SPA and it is sensitive to groundwater pollution, given the distance to the SPA, increased abstraction during periods of drought is considered unlikely to result in any adverse effects on the qualifying	No adverse effects.

European Site, Qualifying Features and approximate distance from the option	Conservation objectives	Mitigation	Appropriate Assessment	Adverse Effects on Site Integrity?
• *Sterna sandvicensis;* ARTICLE 4.2 QUALIFICATION (79/409/EEC) Over winter the area regularly supports: • *Anas crecca;* • *Branta bernicla bernicla;* • *Charadrius hiaticula;* • *Limosa limosa islandica.* ARTICLE 4.2 QUALIFICATION (79/409/EEC): AN INTERNATIONALLY IMPORTANT ASSEMBLAGE OF BIRDS Over winter the area regularly supports: 51361 waterfowl (5 year peak mean 1991/92-1995/96) Including: *Branta bernicla bernicla, Anas crecca, Charadrius hiaticula, Limosa limosa islandica*. See Appendix A for full details	Maintain or restore the population of each of the qualifying features Maintain or restore the distribution of the qualifying features within the site		species of the habitats that support them.	
Solent and Southampton Water Ramsar site (closest point approximately 6.3 km south of Source D source) Ramsar Criterion 1 The site is one of the few major sheltered channels between a substantial island and mainland in European waters, exhibiting an unusual strong double tidal flow and has long periods of slack water at high and low tide. It includes many wetland habitats characteristic of the biogeographic region: saline lagoons, saltmarshes, estuaries, intertidal flats, shallow coastal waters, grazing marshes, reedbeds, coastal woodland and rocky boulder reefs.	There are no conservation objectives for the Ramsar site, the conservation objectives for the SPA have been used.	N/A	Although there is a potential hydrological link to the Ramsar site and it is sensitive to groundwater pollution, increased abstraction during periods of drought is considered unlikely to result in any adverse effects on the qualifying species of the habitats that support them.	No adverse effects.

European Site, Qualifying Features and approximate distance from the option	Conservation objectives	Mitigation	Appropriate Assessment	Adverse Effects on Site Integrity?
Ramsar Criterion 2 The site supports an important assemblage of rare plants and invertebrates. At least 33 British Red Data Book invertebrates and at least eight British Red Data Book plants are represented on site. Ramsar Criterion 5 Assemblages of international importance: Species with peak counts in winter: • 51343 waterfowl (5 year peak mean 1998/99-2002/2003). Ramsar Criterion 6 Species/populations occurring at levels of international importance. Qualifying Species/populations (as identified at designation): Species with peak counts in spring/autumn: • Ringed plover, *Charadrius hiaticula*; Species with peak counts in winter: • Dark-bellied brent goose, *Branta bernicla bernicla;* • Eurasian teal, *Anas crecca*; • Black-tailed godwit, *Limosa limosa islandica.* See Appendix A for full details.				
Arun Valley SPA (closest point approximately 8.5 km northeast of Source S source) ARTICLE 4.1 QUALIFICATION (79/409/EEC)	Maintain or restore the extent and distribution of the habitats of the qualifying features	Risk of pollution from reduced groundwater abstraction needs to be investigated.	Although the site is sensitive to groundwater pollution and hydraulic change, reduced	No adverse effects.

European Site, Qualifying Features and approximate distance from the option	Conservation objectives	Mitigation	Appropriate Assessment	Adverse Effects on Site Integrity?
Over winter the area regularly supports: • *Cygnus columbianus bewickii*. ARTICLE 4.2 QUALIFICATION (79/409/EEC) An internationally important assemblage of birds: Over winter the area regularly supports 27241 waterfowl (5 year peak mean 1991/92-1995/96) Including*: Cygnus columbianus bewickii*.	Maintain or restore the structure and function of the habitats of the qualifying features	Risk of hydraulic impacts from local reduction in abstractions needs to be investigated.	abstraction during periods of drought at a distance of 8.5 km from the SPA is considered unlikely to result in any adverse effects on the qualifying species of the habitats that support them.	
	Maintain or restore the supporting processes on which the habitats of the qualifying features rely			
	Maintain or restore the population of each of the qualifying features			
	Maintain or restore the distribution of the qualifying features within the site			
Arun Valley SAC (closest point approximately 8.5 km northeast of Source S source) Annex II species that are a primary reason for selection of this site: • 4056 Ramshorn snail (*Anisus vorticulus).*	Maintain or restore the extent and distribution of the habitats of the qualifying features	Risk of hydraulic impacts from reduction in abstractions needs to be investigated.	Although the site is sensitive to hydraulic change, reduced abstraction during periods of drought at a distance of 8.5 km from the SAC is considered unlikely to result in any adverse effects on the qualifying species of the habitats that support them.	No adverse effects.
	Maintain or restore the structure and function of the habitats of the qualifying features			
	Maintain or restore the supporting processes on which the habitats of the qualifying features rely			
	Maintain or restore the population of each of the qualifying features			

European Site, Qualifying Features and approximate distance from the option	Conservation objectives	Mitigation	Appropriate Assessment	Adverse Effects on Site Integrity?
	Maintain or restore the distribution of the qualifying features within the site			
Arun Valley Ramsar site (closest point approximately 8.5 km northeast of Source S source) Ramsar criterion 2 The site holds seven wetland invertebrate species listed in the British Red Data Book as threatened. One of these, *Pseudamnicola confusa,* is considered to be endangered. The site also supports four nationally rare and four nationally scarce plant species. Ramsar criterion 3 In addition to the Red Data Book invertebrate and plant species, the ditches intersecting the site have a particularly diverse and rich flora. All five British duckweed Lemna species, all five water-cress Rorippa species, and all three British water milfoils (Myriophyllum species), all but one of the seven British water dropworts (Oenanthe species), and two-thirds of the British pondweeds (Potamogeton species) can be found on site. Ramsar criterion 5 Assemblages of international importance: Species with peak counts in winter: 13774 waterfowl (5 year peak mean 1998/99-2002/2003)	There are no conservation objectives for the Ramsar site, the conservation objectives for the SAC have been used.	Risk of pollution from reduced groundwater abstraction needs to be investigated. Risk of hydraulic impacts from reduction in abstractions needs to be investigated.	Although the site is sensitive to groundwater pollution and hydraulic change, reduced abstraction during periods of drought at a distance of 8.5 km from the Ramsar site is considered unlikely to result in any adverse effects on the qualifying species of the habitats that support them.	No adverse effects.

European Site, Qualifying Features and approximate distance from the option	Conservation objectives	Mitigation	Appropriate Assessment	Adverse Effects on Site Integrity?
Solent and Isle of Wight Lagoons SAC (closest point approximately 9.2 km south of Source H source) Annex I habitats that are a primary reason for selection of this site: • 1150 Coastal lagoons.	Maintain or restore the extent and distribution of qualifying natural habitats Maintain or restore the structure and function (including typical species) of qualifying natural habitats Maintain or restore the supporting processes on which qualifying natural habitats rely	Risk of hydraulic impacts from reduction in abstractions needs to be investigated.	Although the site is sensitive to hydraulic change, reduced abstraction during periods of drought at a distance of 9.2 km from the SAC is considered unlikely to result in any adverse effects on the qualifying species of the habitats that support them.	No adverse effects.

References:

1 – The CIRIA documents are a series of publications developed by the Construction Industry Research and Information Association. Each document is targeted at a particular type of business or activity and covers environmental good practice to minimise pollution.

2 – GPPs provide environmental good practice guidance for the whole UK. Available from: https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/guidance-for-pollution-prevention-gpps-full-list/

Table F-2. HRA Stage 2 AA for Works A treatment capacity increase to treat water from Havant Thicket Reservoir (Phase 2) (PRT_PRT_HI-ROC_WT2_ALL_Works A treatment)

European site and approximate distance from the option	Conservation objectives	Mitigation	Appropriate Assessment	Adverse Effects on Site Integrity?
Solent and Dorset Coast SPA (approximately 2.5 km southwest) ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: • *Sterna sandvicensis* - 4.01% of the GB breeding population (5 year mean 2010-2014, 441 pairs); • *Sterna hirundo* - 4.77% of the GB breeding population (5 year mean 2009-2014, 492 pairs); • *Sterna albifrons* - 3.31% of the GB breeding population (5 year mean 2009-2014, 63 pairs).)	Maintain or restore the extent and distribution of the habitats of the qualifying features Maintain or restore the structure and function of the habitats of the qualifying features Maintain or restores the supporting processes on which the habitats of the qualifying features rely Maintain or restore the population of each of the qualifying features. Maintain or restore the distribution of the qualifying features within the site.	Operation: • Regular monitoring to ensure discharge remains within permitted levels.	The option has been screened back in due to potential in-combination effects with SWS options during operation as all result in discharge into The Solent, which could affect foraging tern habitat. However, all options are located outside the SPA boundary and given it's a dynamic, high dispersion environment and discharges will be subject to controls, even in-combination effects are unlikely to be significant but cannot be discounted. Further assessment will be required to establish the actual scope for in-combination effects and whether or not these could have a detrimental impact on foraging habitat for terns. It is considered likely that through co-ordination and control of discharges that	Adverse effects uncertain

European site and approximate distance from the option	Conservation objectives	Mitigation	Appropriate Assessment	Adverse Effects on Site Integrity?
			adverse effects on site integrity could be avoided.	
Portsmouth Harbour SPA (approximately 3.5 km southwest) ARTICLE 4.2 QUALIFICATION (79/409/EEC) Over winter the area regularly supports: • *Branta bernicla bernicla* (Western Siberia/Western Europe) 0.9% of the population 5 year peak mean 1991/92-1995/96; • *Calidris alpina alpina* (Northern Siberia/Europe/Western Africa) 1% of the population in Great Britain 5 year peak mean 1991/92-1995/96; • *Limosa limosa islandica* (Iceland - breeding) 0.4% of the population in Great Britain 5 year peak mean 1991/92-1995/96; *Mergus serrator* (North-western/Central Europe) 0.9% of the population in Great Britain 5 year peak mean 1991/92-1995/96.	Maintain or restore the distribution of qualifying species within the site. Maintain or restore the structure and function of the habitats of the qualifying features Maintain or restores the supporting processes on which the habitats of the qualifying features rely Maintain or restore the population of each of the qualifying features Maintain or restore the distribution of the qualifying features within the site.	Operation: • Regular monitoring to ensure discharge remains within permitted levels.	The option has been screened back in due to potential in-combination effects with SWS options during operation as all result in discharge into The Solent, which could affect foraging tern habitat. However, all options are located outside the SPA boundary and given it's a dynamic, high dispersion environment and discharges will be subject to controls, even in-combination effects are unlikely to be significant but cannot be discounted. Further assessment will be required to establish the actual scope for in-combination effects and whether or not these could have a detrimental impact on foraging habitat for terns. It is considered likely that through co-ordination and control of discharges that adverse effects on site integrity could be avoided.	Adverse effects uncertain

European site and approximate distance from the option	Conservation objectives	Mitigation	Appropriate Assessment	Adverse Effects on Site Integrity?
Portsmouth Harbour Ramsar site (approximately 3.5 km southwest) Ramsar criterion 3 The intertidal mudflat areas possess extensive beds of eelgrass *Zostera angustifolia* and *Zostera noltei* which support the grazing dark-bellied brent geese populations. The mud-snail *Hydrobia ulvae* is found at extremely high densities, which helps to support the wading bird interest of the site. Common cord-grass *Spartina anglica* dominates large areas of the saltmarsh and there are also extensive areas of green algae Enteromorpha spp. and sea lettuce *Ulva lactuca*. More locally the saltmarsh is dominated by sea purslane *Halimione portulacoides* which gradates to more varied communities at the higher shore levels. The site also includes a number of saline lagoons hosting nationally important species. Ramsar criterion 6 – species/populations occurring at levels of international importance. Qualifying Species/populations (as identified at designation): Species with peak counts in winter: Dark-bellied brent goose, *Branta bernicla bernicla*, 2105 individuals, representing an average of 2.1% of the GB population (5 year peak mean 1998/9-2002/3)	In the absence of conservation objectives for the Ramsar, those for the SPA (above) have been used.	Operation: • Regular monitoring to ensure discharge remains within permitted levels.	See assessment for Portsmouth Harbour SPA above.	No

Appendix G. In-combination Assessment for the Upgrade Source O Booster to 25 Ml/d Stage 2 AA

Plan or Project	Authority	Summary of report details	Summary of the potential for the proposed project/ plan to have an adverse effect on the European sites	Findings of Stage 1 in-combination assessment	Potential for adverse effects on site integrity after avoidance/ mitigation?
South Downs National Park Authority Local Plan 2014-2033 Habitat Regulations Assessment[137] April, 2018	South Downs National Park Authority	A HRA of the potential effects of policies within the South Downs National Park Local Plan on European designated sites.	European sites identified in the HRA and potential effects: • Chichester and Langstone Harbours SPA and Ramsar site – the effects considered were recreational pressure, changes in water quality, changes in air quality and changes in water quantity; • Solent Maritime SAC – the effects considered were changes in water quality and changes in air quality; • Kingley Vale SAC – the effects considered are recreational pressure and air quality • Arun Valley SAC, SPA and Ramsar site – the effects considered are recreational pressure, hydrology, loss of functionally linked land and urbanisation;	There is potential for the Upgrade Source O Booster to 25 Ml/d option to have an in-combination effect with the South Downs National Park Local Plan on Chichester and Langstone Harbours SPA/ Ramsar site and Solent Maritime SAC as a result of combined water quality impacts.	No. Once measures to avoid and mitigate potential impacts have been implemented (as outlined in the AA, Table F-1 above), it is considered that even in-combination the option will not have adverse effects on the European Sites.

[137] https://www.southdowns.gov.uk/planning-policy/south-downs-local-plan/local-plan-evidence-base/core-document-library/submission-documents/

Plan or Project	Authority	Summary of report details	Summary of the potential for the proposed project/ plan to have an adverse effect on the European sites	Findings of Stage 1 in-combination assessment	Potential for adverse effects on site integrity after avoidance/ mitigation?
			• River Itchen SAC – the effects considered are air quality, hydrology and urbanisation; • Solent and Dorset Coast SPA - the effects considered are hydrology and water quality. Potential effects from recreational pressure and changes to water quantity were screened out. It was concluded that changes to water quality and, air quality as a result of the Local Plan would lead to no LSE.		
West Sussex Minerals & Waste Development Framework Habitats Regulations Assessment – Screening of Likely Significant Effects Report[138] March 2010	West Sussex County Council	The HRA for the West Sussex Minerals & Waste Development Framework.	European sites identified in the HRA and potential effects: • Chichester and Langstone Harbours SPA/ Ramsar site - atmospheric pollution, changes to water quality, predation, disturbance and coastal squeeze; • Solent Maritime SAC - changes to water quality and coastal squeeze; • Arun Valley SPA/ Ramsar site – changes to water quality and disturbance. Four mineral sites and five waste sites have been screened in for Appropriate Assessment for	There is potential for the Upgrade Source O Booster to 25 Ml/d option to have an in-combination effect with the West Sussex Minerals and Waste Development Framework on Chichester and Langstone Harbours SPA/ Ramsar site and Solent Maritime SAC as a result of combined water quality impacts.	No. Once measures to avoid and mitigate potential impacts have been implemented, it is considered that even in-combination the option will not have adverse effects on the European Sites.

[138] http://www2.westsussex.gov.uk/mlp/eb014.pdf

Plan or Project	Authority	Summary of report details	Summary of the potential for the proposed project/ plan to have an adverse effect on the European sites	Findings of Stage 1 in-combination assessment	Potential for adverse effects on site integrity after avoidance/ mitigation?
			Chichester and Langstone Harbours SPA/Ramsar site Solent Maritime SAC and two minerals sites and four waste sites for potential effects on Arun Valley SPA/ Ramsar site. A number of policies have also been screened in for Appropriate Assessment.		
Hampshire Minerals and Waste Plan Assessment Under the Habitats Regulations, July 2013[139]	Hampshire County Council, Portsmouth City Council. New Forest National Park, Southampton City Council and South Downs National Park	The HRA for the Hampshire Minerals and Waste Plan.	The HRA considered the following European Sites and potential effect pathways: • Solent Maritime SAC - changes to hydrology and water quality, recreation, air quality and disturbance; • Solent and Southampton Water SPA/ Ramsar site – damage/ loss of habitat (including functionally linked land), damage/ loss of habitat, recreation, air quality and disturbance; • River Itchen SAC - damage/ loss of habitat, disturbance. The HRA concluded no adverse effects on site integrity with implementation of mitigation.	The Minerals and Waste Plan concluded more detailed information with regard to changes in water quality would be required. Therefore, there is potential for an in-combination effect with the Upgrade Source O Booster to 25 Ml/d option on the Solent Maritime SAC.	No. Once measures to avoid and mitigate potential impacts have been implemented, it is considered that even in-combination the option will not have adverse effects on the European Sites.

[139] https://documents.hants.gov.uk/planning-strategic/HMWPHRARecordFINALSept2013.pdf

Plan or Project	Authority	Summary of report details	Summary of the potential for the proposed project/ plan to have an adverse effect on the European sites	Findings of Stage 1 in-combination assessment	Potential for adverse effects on site integrity after avoidance/ mitigation?
Chichester Site Allocation Development Plan Document[140] Habitat Regulations Assessment August 2018	Chichester District Council	HRA for Chichester District Council Site Allocation Development Plan which follows on from the adopted Chichester Local Plan: Key Policies 2014-2029 Development Plan Document.	The European sites considered are: • Chichester and Langstone Harbours SPA and Ramsar Site; • Solent Maritime SAC. The following impacts were considered: • Increased recreational pressure; • Loss of supporting habitats; • Changes to water quality; • Disturbance from construction; • Coastal squeeze; • Air quality. Impacts from coastal squeeze and air quality were ruled out as having no LSE at the strategic level. It was concluded at Stage 2 that changes to water quality and disturbance would have no adverse effect on site integrity. Mitigation is required for changes to recreational impacts and habitat loss.	There is potential for an in-combination effect with the Upgrade Source O Booster to 25 Ml/d option on Chichester and Langstone Harbours SPA/ Ramsar site and Solent Maritime SAC as a result of combined changes to water quality.	No. Once measures to avoid and mitigate potential impacts have been implemented, it is considered that even in-combination the option will not have adverse effects on the European Sites.
Charmans Field, Runcorn Shadow Appropriate Assessment[141] August 2022	Chichester District Council	The HRA is for an outline planning application for the construction of 94 dwellings, new access	The HRA considers the following designated sites: • Chichester and Langstone Harbour SPA/ Ramsar site - Potential LSE include increased	The Charmans Field Appropriate Assessment concluded no LSE with regards to water quality. However, there is potential	No. Once measures to avoid and mitigate potential impacts have been implemented, it is

[140] https://www.chichester.gov.uk/media/30416/Further-HRA-Appropriate-Assessment/pdf/HRA_August_2018_for_issue.pdf
[141] https://publicaccess.chichester.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=RH4LPFER0ZU00

Plan or Project	Authority	Summary of report details	Summary of the potential for the proposed project/ plan to have an adverse effect on the European sites	Findings of Stage 1 in-combination assessment	Potential for adverse effects on site integrity after avoidance/ mitigation?
		road, urban drainage and associated works.	recreational disturbance of wintering birds. It was concluded there would be no LSE from increased recreational disturbance on breeding birds, disturbance of wintering and breeding birds during construction, hydrological changes and air quality changes; Solent Maritime SAC - It was concluded there would be no LSE from recreational activity, hydrological changes and air quality changes.	for in-combination effects on Solent Maritime SAC and Chichester and Langstone Harbours SPA/ Ramsar site.	considered that even in-combination the option will not have adverse effects on the European Sites.
Harris Scrap Yard REPORT TO INFORM HABITATS REGULATIONS ASSESSMENT STAGE 1 AND STAGE 2[142] June 2022	Chichester District Council	The HRA for the construction of a development including 112 dwellings, a Children's Nursery with associated parking and landscaping.	The European sites considered in the HRA include: • Chichester and Langstone Harbours SPA and Ramsar site – disturbance and recreational pressure, nutrient outputs, air pollution and surface water pollution; • Solent Maritime SAC – nutrient outputs and air pollution; • Solent and Dorset Coast SPA – nutrient outputs; • Solent and Southampton Water SPA/ Ramsar site - disturbance and recreational pressure.	It was concluded in the Harris Scrap Yard HRA that there was no potential for surface water pollution or nutrient outputs to have an adverse effect on Chichester and Langstone Harbours SPA and Ramsar site, Solent and Dorset Coast SPA and Solent Maritime SAC, provided appropriate mitigation was applied at AA. Therefore, it is considered that there is scope for an in-	No. Once measures to avoid and mitigate potential impacts have been implemented, it is considered that even in-combination the option will not have adverse effects on the European Sites.

[142] https://publicaccess.chichester.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=RBZDWOERGJ300

Plan or Project	Authority	Summary of report details	Summary of the potential for the proposed project/ plan to have an adverse effect on the European sites	Findings of Stage 1 in-combination assessment	Potential for adverse effects on site integrity after avoidance/ mitigation?
			All impacts on Kingley Vale SAC and Solent and Isle of Wight Lagoons SAC were ruled out.	combination effect on the Solent Maritime SAC and Chichester and Langstone Harbours SPA/ Ramsar site. The Upgrade Source O Booster to 25 Ml/d option will not result in any disturbance, recreation or air pollution.	
Tangmere Strategic Development Location, West Sussex Report to Inform a Habitats Regulations Assessment (including Appropriate Assessment)[143] November 2022	Chichester District Council	The HRA is for an outline planning application for a residential-led mixed use development comprising up to 1,300 dwellings (Use Class C3), an expanded village centre (comprising flexible units suited to Use Class E and pubs or drinking establishments and/or takeaways in Use Class Sui Generis), community uses, primary school, informal and formal open space, playing pitches, footpaths, cycleways, associated landscaping, utilities	The HRA considers impacts on the following European sites: • Chichester and Langstone Harbours SPA/ Ramsar site; • Solent Maritime SAC; • Kingley Vale SAC; • Solent and Dorset Coast SPA; • Arun Valley SAC. The potential effects considered in the HRA are: • Loss of habitats; • Recreational disturbance; • Air quality effects; • Urbanisation; • Water quality; • Water demand; • Coastal squeeze. All effects on the European Sites were screened out apart from recreational effects on Chichester and Langstone Harbours SPA/ Ramsar site.	The assessment considered potential water quality effects, there is scope for an in-combination effect with the Upgrade Source O Booster to 25 Ml/d option.	No. Once measures to avoid and mitigate potential impacts have been implemented, it is considered that even in-combination the option will not have adverse effects on the European Sites.

[143] https://publicaccess.chichester.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=QJZZT4ERIUA00

Plan or Project	Authority	Summary of report details	Summary of the potential for the proposed project/ plan to have an adverse effect on the European sites	Findings of Stage 1 in-combination assessment	Potential for adverse effects on site integrity after avoidance/ mitigation?
		and drainage infrastructure, including on-site pumping station(s) with connection to the Strategic Foul network; associated infrastructure and groundworks; with all matters reserved except for the principal access junctions from the A27 grade-separated junction and Tangmere Road and the secondary access at Malcolm Road.			
Havant Borough Local Plan Habitats Regulations Assessment[144] June 2020	Havant Borough Council	HRA for the Havant Borough Council Local Plan	European Sites included in the assessment and potential effect pathways: • Solent Maritime SAC – habitat loss, air quality, coastal squeeze, water resources/ nutrient neutrality; • Chichester and Langstone Harbours SPA/ Ramsar site – habitat loss, recreational disturbance coastal squeeze, water resources/ nutrient neutrality;	The Upgrade Source O Booster to 25 Ml/d option will not have effects in relation to coastal squeeze, habitat loss, air quality or disturbance. However, there is still potential for in-combination effects on the with the Upgrade Source O Booster to 25 Ml/d option with respect to water resources.	No. Once measures to avoid and mitigate potential impacts have been implemented, it is considered that even in-combination the option will not have adverse effects on the European Sites.

[144] https://cdn.havant.gov.uk/public/documents/HBLP%20HRA%20changes%20June%202020.pdf

Plan or Project	Authority	Summary of report details	Summary of the potential for the proposed project/ plan to have an adverse effect on the European sites	Findings of Stage 1 in-combination assessment	Potential for adverse effects on site integrity after avoidance/ mitigation?
			• Solent and Isle of Wight Lagoons SAC – water resources/ nutrient neutrality; • Solent and Dorset Coast SPA – habitat loss, coastal squeeze, water resources/ nutrient neutrality; • Solent and Southampton Water SPA/ Ramsar site – water resources/ nutrient neutrality; • Kingley Vale SAC – all impacts ruled out due to distance. With mitigation it was concluded that the plan would hve no adverse effect on the integrity of any European Sites.	However, this is unlikely to be significant.	
Rook Farm, Hayling Island Information to inform Habitats Regulations Assessment[145], October 2021	Havant Borough Council	HRA for outline planning permission for a residential development.	The HRA considers the following European Site and effect pathways: • Solent Maritime SAC - air quality, hydrological regime, pollution of surface/ groundwater; • Chichester and Langstone Harbours SPA/ Ramsar site – disturbance, air quality, hydrological regime, pollution of surface/ groundwater; • Solent and Dorset Coast SPA - hydrological regime, pollution of surface/ groundwater;	It was concluded that there would be no adverse effect on the European sites once mitigation measures were implemented, however there is potential for an in-combination effect via hydrological change/ water quality.	No. Once measures to avoid and mitigate potential impacts have been implemented, it is considered that even in-combination the option will not have adverse effects on the European Sites.

[145] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_252459

Plan or Project	Authority	Summary of report details	Summary of the potential for the proposed project/ plan to have an adverse effect on the European sites	Findings of Stage 1 in-combination assessment	Potential for adverse effects on site integrity after avoidance/ mitigation?
			• Solent and Isle of Wight Lagoons SAC - pollution of surface/ groundwater; • Solent and Southampton Water SPA/ Ramsar site - disturbance, pollution of surface/ groundwater.		
APP/21/01259 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[146], February 2022	Havant Borough Council	The HRA for a development comprising of 122 dwellings.	The European sites considered in the HRA: • Chichester and Langstone Harbours SPA/ Ramsar site; • Solent Maritime SAC; • Solent and Dorset Coast SPA; • Solent and Southampton Water SPA/ Ramsar site; • Solent and Isle of Wight Lagoons SAC. The HRA considered water quality, degradation of supporting habitats, construction impacts (noise, pollution), air quality. It concluded that with mitigation there would be no adverse effects on site integrity.	It was concluded that there would be no adverse effect on the European sites once mitigation measures were implemented, however there is potential for an in-combination effect via water quality.	No. Once measures to avoid and mitigate potential impacts have been implemented, it is considered that even in-combination the option will not have adverse effects on the European Sites.
Habitats Regulations Assessment (HRA) Screening and	Havant Borough Council	HRA for the outline planning application for 43 dwellings with	The HRA considers: • Chichester and Langstone Harbours SPA/Ramsar site	There is scope for an in-combination effect with the Upgrade Source O	No. Once measures to avoid and mitigate potential

[146] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_252213

Plan or Project	Authority	Summary of report details	Summary of the potential for the proposed project/ plan to have an adverse effect on the European sites	Findings of Stage 1 in-combination assessment	Potential for adverse effects on site integrity after avoidance/ mitigation?
Appropriate Assessment (AA)[147], March 2023 Land South of Lower Road and West of Old Manor Farm, Bedhampton		access from Lower Road and associated landscaping, open space and allotments, and all other matters reserved	• Solent Maritime SAC • Solent and Dorset Coast SPA • Solent and Southampton Water SPA/ Ramsar site • Solent and Isle of Wight Lagoons SAC Impacts considered are recreational pressure, water quality and loss/ degradation of supporting habitats. The HRA concluded that with mitigation there would be no adverse effects on site integrity.	Booster to 25 Ml/d option with regard to water quality. The other effect pathways are not relevant to the option.	impacts have been implemented, it is considered that even in-combination the option will not have adverse effects on the European Sites.
Shadow Habitat Regulations Assessment. Land north of Long Copse Lane, Emsworth[148], March 2022	Havant Borough Council	HRA for the outline planning application for the demolition of the existing buildings and erection of a new residential scheme.	The European sites considered in the HRA: • Chichester and Langstone Harbours SPA/ Ramsar site • Solent Maritime SAC • Kingley Vale SAC • Solent and Isle of Wight Lagoons SAC. The impact pathways identified were; • Pollution to groundwater and water resources • Atmospheric pollution • Recreational pressure	It was concluded that there would be no LSE on the European sites, however there is scope for an in-combination effect via water quality.	No. Once measures to avoid and mitigate potential impacts have been implemented, it is considered that even in-combination the option will not have adverse effects on the European Sites.

[147] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_251908
[148] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_251575

Plan or Project	Authority	Summary of report details	Summary of the potential for the proposed project/ plan to have an adverse effect on the European sites	Findings of Stage 1 in-combination assessment	Potential for adverse effects on site integrity after avoidance/ mitigation?
			• Ecosystem modifications (loss or degradation of supporting habitats).		
Southmere Field, Langstone Road, Langstone Havant. Shadow Habitat Regulations Assessment[149], July 2021	Havant Borough Council	HRA for the outline planning application for the construction of 65 dwellings and associated works.	The HRA considers: • Chichester and Langstone Harbours SPA/Ramsar site • Solent Maritime SAC • Solent and Dorset Coast SPA • Solent and Isle of Wight Lagoons SAC The potential effects considered are: • Pollution to ground water and surface water • Change in nitrogen output • Recreational activities Impacts on functionally linked land	It was concluded that there would be no adverse effect on the European sites once mitigation measures were implemented; however, there is potential for an in-combination effect with respect to water quality.	No. Once measures to avoid and mitigate potential impacts have been implemented, it is considered that even in-combination the option will not have adverse effects on the European Sites.
Cottage Farm, Lovedean. Report to Inform Habitats Regulations Assessment Stage 1 and Stage 2[150], January 2021	Havant Borough Council	HRA for the construction of 43 dwellings with associated landscaping and road infrastructure.	The HRA considers: • Chichester and Langstone Harbours SPA/ Ramsar site • Solent Maritime SAC • Solent and Dorset Coast SPA • Solent and Isle of Wight Lagoons SAC • Solent and Southampton Water SPA The only potential pathway considered was the release of	It was concluded that there would be no adverse effect on the European sites once mitigation measures were implemented, however there is potential for an in-combination effect.	No. Once measures to avoid and mitigate potential impacts have been implemented, it is considered that even in-combination the option will not have adverse effects on the European Sites.

[149] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_251054
[150] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_250280

Plan or Project	Authority	Summary of report details	Summary of the potential for the proposed project/ plan to have an adverse effect on the European sites	Findings of Stage 1 in-combination assessment	Potential for adverse effects on site integrity after avoidance/ mitigation?
			nutrient outputs resulting from changing land use.		
Sinah Lane, Hayling Island. Information to Inform Habitats Regulations Assessment[151], November 2020	Havant Borough Council	HRA for the construction of 195 dwellings and associated landscaping.	The HRA considers Chichester and Langstone Harbours SPA/Ramsar site. The impact pathways include disturbance from recreation, water pollution, changes in species distributions, air pollution and impacts on supporting habitats.	It was concluded that there would be no LSE on the European sites, however there is scope for an in-combination effect.	No. Once measures to avoid and mitigate potential impacts have been implemented, it is considered that even in-combination the option will not have adverse effects on the European Sites.
APP/20/00933 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[152], October 2020 9 East Street, Havant, PO9 1AA	Havant Borough Council	HRA for the demolition of an existing retail unit (no. 9 East Street) and construction of 10 no. supported living units.	The HRA considers impacts on water quality and increased recreation on: • Solent Maritime SAC • Chichester and Langstone Harbours SPA/Ramsar site. • Solent and Dorset Coast SPA • Solent and Isle of Wight Lagoons SAC • Solent and Southampton Water SPA/ Ramsar site The HRA concludes there will be no adverse effects with mitigation.	It was concluded that there would be no adverse effect on the European sites once mitigation measures were implemented, however there is potential for an in-combination effect.	No. Once measures to avoid and mitigate potential impacts have been implemented, it is considered that even in-combination the option will not have adverse effects on the European Sites.
Cottage Farm, Lovedean. Report to Inform Habitats Regulations Assessment Stage 1	Havant Borough Council	HRA for the construction of 56 dwellings with associated	The HRA considers changes in nutrient outputs on: • Solent Maritime SAC • Chichester and Langstone Harbours SPA/Ramsar site.	It was concluded that there would be no LSE on the European sites, however there is scope for an in-combination effect.	No. Once measures to avoid and mitigate potential impacts have been implemented, it is

[151] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_249519
[152] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_249239

Plan or Project	Authority	Summary of report details	Summary of the potential for the proposed project/ plan to have an adverse effect on the European sites	Findings of Stage 1 in-combination assessment	Potential for adverse effects on site integrity after avoidance/ mitigation?
and Stage 2, May 2020[153].		landscaping and road infrastructure.	• Solent and Dorset Coast SPA • Solent and Isle of Wight Lagoons SAC • Solent and Southampton Water SPA/ Ramsar site		considered that even in-combination the option will not have adverse effects on the European Sites.
APP/20/00441 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[154], September 2021.	Havant Borough Council	HRA for an outline planning application for the development of 100 dwellings and associated access improvements and landscaping.	The HRA considers changes to water quality and recreation pressures on: • Solent Maritime SAC • Chichester and Langstone Harbours SPA/Ramsar site. • Solent and Dorset Coast SPA • Solent and Isle of Wight Lagoons SAC • Solent and Southampton Water SPA/ Ramsar site	It was concluded that there would be no adverse effect on the European sites once mitigation measures were implemented, however there is potential for an in-combination effect.	No. Once measures to avoid and mitigate potential impacts have been implemented, it is considered that even in-combination the option will not have adverse effects on the European Sites.
APP/20/00363 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[155], September 2021.	Havant Borough Council	HRA for the demolition of the existing structure and construction of a building with 20 apartments.	The HRA considers changes to water quality and recreation pressures on: • Solent Maritime SAC • Chichester and Langstone Harbours SPA/Ramsar site. • Solent and Dorset Coast SPA • Solent and Isle of Wight Lagoons SAC	It was concluded that there would be no adverse effect on the European sites once mitigation measures were implemented, however there is potential for an in-combination effect.	No. Once measures to avoid and mitigate potential impacts have been implemented, it is considered that even in-combination the option will not have adverse effects on the European Sites.

[153] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_248270
[154] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_248241
[155] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_248058

Plan or Project	Authority	Summary of report details	Summary of the potential for the proposed project/ plan to have an adverse effect on the European sites	Findings of Stage 1 in-combination assessment	Potential for adverse effects on site integrity after avoidance/ mitigation?
			• Solent and Southampton Water SPA/ Ramsar site		
APP/20/00251 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[156], September 2020.	Havant Borough Council	HRA for the construction of 29 apartments, commercial units and demolition of existing retail development.	The HRA considers changes to water quality and recreation pressures on: • Solent Maritime SAC • Chichester and Langstone Harbours SPA/Ramsar site. • Solent and Dorset Coast SPA • Solent and Isle of Wight Lagoons SAC • Solent and Southampton Water SPA/ Ramsar site	It was concluded that there would be no adverse effect on the European sites once mitigation measures were implemented, however there is potential for an in-combination effect.	No. Once measures to avoid and mitigate potential impacts have been implemented, it is considered that even in-combination the option will not have adverse effects on the European Sites.
Harts Farm Way, Havant Habitats Regulations Assessment[157], November 2021	Havant Borough Council	HRA for the outline planning application for the development of new employment units, with associated car parking, drainage works and landscaping.	The HRA considers impacts on connectivity, air quality, disturbance, water quality and hydrology on Chichester and Langstone Harbours SPA/Ramsar site. Impacts on Solent and Southampton Water SPA not assessed.	It was concluded that there would be no adverse effect on the European sites once mitigation measures were implemented, however there is potential for an in-combination effect.	No. Once measures to avoid and mitigate potential impacts have been implemented, it is considered that even in-combination the option will not have adverse effects on the European Sites.

[156] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_247889
[157] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_250174

Plan or Project	Authority	Summary of report details	Summary of the potential for the proposed project/ plan to have an adverse effect on the European sites	Findings of Stage 1 in-combination assessment	Potential for adverse effects on site integrity after avoidance/ mitigation?
APP/20/00761 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[158], October 2020 Land on the east side of Helmsley House, Bartons Road, and west of Normandy Road, Havant	Havant Borough Council	HRA for the construction of a 64-bed care home, with new access road, car parking, drainage works and landscaping.	The HRA considers changes to water quality and recreation pressures on: • Solent Maritime SAC • Chichester and Langstone Harbours SPA/Ramsar site. • Solent and Dorset Coast SPA • Solent and Isle of Wight Lagoons SAC • Solent and Southampton Water SPA/ Ramsar site	It was concluded that there would be no adverse effect on the European sites once mitigation measures were implemented, however there is potential for an in-combination effect.	No. Once measures to avoid and mitigate potential impacts have been implemented, it is considered that even in-combination the option will not have adverse effects on the European Sites.
APP/20/00991 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[159], April 2021	Havant Borough Council	HRA for the outline planning application for the construction of a new pipeline to transfer water from Source B2 to fill the reservoir.	The HRA considers changes to water quality on Solent Maritime SAC, Solent and Dorset Coast SPA and Chichester and Langstone Harbours SPA/Ramsar site. The HRA for the outline planning application concluded LSE at screening.	It was concluded that there would be no adverse effect on the European sites once mitigation measures were implemented, however there is potential for an in-combination effect.	No. Once measures to avoid and mitigate potential impacts have been implemented, it is considered that even in-combination the option will not have adverse effects on the European Sites.
APP/20/00990 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[160], April 2021	Havant Borough Council	HRA for the development of a reservoir for raw water storage and pumped water storage.	The HRA considers changes to water quality on Solent Maritime SAC, Solent and Dorset Coast SPA and Chichester and Langstone Harbours SPA/Ramsar site. The HRA for the outline planning	It was concluded that there would be no adverse effect on the European sites once mitigation measures were implemented, however	No. Once measures to avoid and mitigate potential impacts have been implemented, it is considered that even in-combination the option will

[158] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_248910
[159] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_249341
[160] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_249340

Plan or Project	Authority	Summary of report details	Summary of the potential for the proposed project/ plan to have an adverse effect on the European sites	Findings of Stage 1 in-combination assessment	Potential for adverse effects on site integrity after avoidance/ mitigation?
			application concluded LSE at screening	there is potential for an in-combination effect.	not have adverse effects on the European Sites.
APP/20/01127 APP/20/00990 Habitats Regulations Assessment (HRA) Screening and Appropriate Assessment (AA)[161], August 2021	Havant Borough Council	HRA for the redevelopment of Mill Rythe Holiday Village.	The HRA considers changes to water quality, recreation, construction impacts and habitat loss on: • Solent Maritime SAC • Chichester and Langstone Harbours SPA/Ramsar site. • Solent and Dorset Coast SPA • Solent and Isle of Wight Lagoons SAC • Solent and Southampton Water SPA/ Ramsar site The HRA for the redevelopment concluded there would be and LSE on the water quality of the European sites in the absence of mitigation.	It was concluded that there would be no adverse effect on the European sites once mitigation measures were implemented, however there is potential for an in-combination effect.	No. Once measures to avoid and mitigate potential impacts have been implemented, it is considered that even in-combination the option will not have adverse effects on the European Sites.
APP/21/01310 Habitats Regulations Assessment (HRA) Screening and Appropriate	Havant Borough Council	HRA for the change in use of land and woodland as a wedding and events venue, including the use of land as a campsite.	The HRA considers changes to water quality, recreation, noise pollution and habitat loss on: • Solent Maritime SAC • Chichester and Langstone Harbours SPA/Ramsar site. • Solent and Dorset Coast SPA	It was concluded that there would be no adverse effect on the European sites once mitigation measures were implemented, however	No. Once measures to avoid and mitigate potential impacts have been implemented, it is considered that even in-combination the option will

[161] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_249340

Plan or Project	Authority	Summary of report details	Summary of the potential for the proposed project/ plan to have an adverse effect on the European sites	Findings of Stage 1 in-combination assessment	Potential for adverse effects on site integrity after avoidance/ mitigation?
Assessment (AA)[162], August 2022			• Solent and Isle of Wight Lagoons SAC • Solent and Southampton Water SPA/ Ramsar site The HRA for the redevelopment concluded there would be and LSE on the water quality of the European sites in the absence of mitigation.	there is potential for an in-combination effect.	not have adverse effects on the European Sites.

[162] https://planningpublicaccess.havant.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=DCAPR_252316

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