Hampshire Water Transfer and Water Recycling Project

Environmental Statement – Appendix 19.2 Water Environment Regulations compliance assessment

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1 Introduction

1.1 Purpose of this report

1.1.1 This document has been updated at Deadline 1 to reflect updated water quality modelling data. References to other Application documents have not been updated from the original submission. Please refer to the latest version of the Guide to the Application (Document reference 1.3, Volume 1) for the list of current versions of documents.

1.1.2 The Hampshire Water Transfer and Water Recycling Project (hereafter referred to as the 'Proposed Development') comprises a combination of both water transfer and water recycling technology that would play a major role in making up the shortfall in water supply across the Hampshire supply area.

1.1.3 This report, which forms an appendix to the Environmental Statement (ES) Chapter 19 Water environment, Volume I, (Document reference 6.1, DCO Volume 6), presents an assessment of whether the Proposed Development would be compliant with the requirements of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (hereafter referred to as the 'Water Environment Regulations' (WER)).

Water Environment Regulations

1.1.4 The WER transposed into English and Welsh law 'Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for community action in the field of water policy' (commonly known as the Water Framework Directive or WFD). They remain in force following the UKs withdrawal from the European Union.

1.1.5 The WER require competent authorities in England and Wales to prevent deterioration and protect and enhance the status of aquatic ecosystems. This means that these authorities must ensure that new activities do not adversely impact upon the status of aquatic ecosystems. The regulations apply to all bodies of water, including those that are artificial.

Quality elements - surface waters

1.1.6 There are two separate components used to classify the status of surface water bodies (rivers, lakes, estuaries and coastal waters): ecological and chemical. The Ecological Status of a surface water body is assessed according to the condition of:

1. Biological quality elements, including fish, benthic invertebrates and aquatic flora.
2. Physico-chemical quality elements, including thermal conditions, salinity, pH, nutrient concentrations and concentrations of specific pollutants such as copper.
3. Hydromorphological quality elements, including morphological conditions, hydrological regime and tidal regime.

1.1.7 The Ecological Status of surface waters is recorded on a scale of 'high', 'good', 'moderate', 'poor and 'bad'. The Ecological Status of a water body is determined by the worst scoring quality element, which means that the condition of a single quality element can cause a water body to fail to reach its classification objectives. The overall environmental objective of reaching Good Ecological Status (GES) applies to these water bodies.

1.1.8 Where the changes to the hydromorphology of a surface water body necessary to achieve GES would have significant adverse effects on i) the wider environment, ii) navigation, iii) activities for which water is stored (such as drinking water supply, power generation or irrigation), iv) water regulation, flood protection and land drainage, or v) other sustainable human development activities considered to be of equal importance by the relevant competent authority, Regulation 15 of the WER allows it to be designated as an Artificial or Heavily Modified Water Body (AWB or HMWB). An alternative environmental objective to GES, Good Ecological Potential (GEP), applies in relation to water bodies that have been designated as AWB or HMWB.

1.1.9 The Chemical Status of surface waters is assessed by compliance with environmental standards set out in the Environmental Quality Standards Directive (2008/105/EC) (EQSD) [1] and which have been transposed into English and Welsh law with modifications set out in Schedule 5 Part 3 to the WER. These chemicals include priority substances and priority hazardous substances. Chemical Status is recorded as either Good or 'failing to achieve good' and is determined by the lowest chemical scoring. Concentrations of several "ubiquitous, persistent, bioaccumulative, toxic substances" (uPBTs) found in all surface waters means that no water bodies in England or Wales are currently at Good Chemical Status.

Quality elements - groundwaters

1.1.10 Groundwaters are assessed in a different way to surface waters. Instead of GES and GEP, groundwaters are classified as either poor or good in terms of quantity (groundwater levels, flow directions) and quality (pollutant concentrations and conductivity).

Protected Areas

1.1.11 The WER incorporates objectives and requirements for the quality of waters used for abstraction of drinking water (Regulation 8) and designation of shellfish waters (Regulation 9). Areas designated for the protection of habitats or species, or for their sensitivity to nutrients, or human health (bathing waters) have separate regulations that set out the objectives and requirements. These are known as Protected Areas.

1.1.12 Regulation 10 of the WER requires the Environment Agency (EA) to establish and keep an up-to-date register of Protected Areas. The types of Protected Areas that must be included in the register are:

1. Areas identified for the abstraction of water intended for human consumption (Drinking Water Protected Areas (DrWPA)).
2. Areas designated for the protection of economically significant aquatic species (Shellfish Water Protected Areas).

3. Bodies of water designated as recreational waters, including bathing waters (Bathing Water Protected Areas).
4. Nutrient-sensitive areas, including areas identified as Nitrate Vulnerable Zones (NVZ) and sensitive areas for urban wastewater treatment (Urban Wastewater Treatment Directive Protected Areas (UWTDPA)).
5. Areas designated for the protection of habitats or species. These are water-dependent Special Areas of Conservation (SAC) and Special Protection Areas (SPA), collectively referred to as National Site Network (NSN) sites. As a matter of government policy, Ramsar sites receive the same treatment as NSN protected areas. Further information is provided in HRA (Habitats Regulations Assessment – Stage 2 Appropriate Assessment and Marine Conservation Zone – Stage 1 Assessment (Document reference 5.2, DCO Volume 5)).

River Basin Management Plan mitigation measures

1.1.13 For surface water bodies that have been designated as an AWB or HMWB, the physical environment has been altered to such a degree that the attainment of GES is not possible without having a significant adverse impact on a number of specified factors, including the wider environment and drinking water supply.

1.1.14 Due to the range and combinations of physical modifications that occur in surface waters, which all have varying impacts on the biology, it may not be possible to define biological targets for AWBs or HMWBs with confidence. Instead, the mitigation measures required to achieve the best possible condition without adversely affecting the wider environment or human usage of the water body are identified by the relevant competent authority (in this case, the EA) and defined in the appropriate River Basin Management Plan (RBMP). The presence or absence of these mitigation measures is used to determine whether the water bodies are at GEP.

1.1.15 For a modified water body to be at GEP, all relevant mitigation measures need to be in place and the physico-chemical elements to be at good status. These are described in the RBMP as the relevant mitigation measures in a mitigation measures assessment for each AWB or HMWB.

1.1.16 Within this WER compliance assessment, the method identifies these measures using the prefix ‘RBMP’ to avoid confusion with any mitigation measures identified within the Proposed Development design as primary and tertiary mitigation set out in relevant management plans as part of the Development Consent Order (DCO) application.

WFD Directions

1.1.17 The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015 (hereafter ‘WFD Directions’) establish a series of thresholds that are used in the classification of water body status under the WER.

1.1.18 The WFD Directions set out the process used to categorise surface and groundwater bodies, and determine the Ecological Status or potential of surface waters, the Chemical Status of surface and groundwaters and the Quantitative Status of groundwater. The WFD Directions describe the characteristics of each

quality element that combine to determine each status classification, allowing water bodies to be consistently classified.

1.2 Structure of this report

1.2.1 Section 2 of this report presents an overview of the assessment method and Section 3 presents a description of the Proposed Development and mitigation measures that have been included in the design to avoid or reduce effects on the water environment and water-dependent receptors.

1.2.2 The remaining sections of this report present the results of the WER compliance assessment, which are presented separately for each component of the Proposed Development as follows:

1. Section 4: Water Recycling Plant (WRP) site.
2. Section 5: Pipelines between Budds Farm Wastewater Treatment Works (WTW) and the WRP site.
3. Section 6: Pipelines between the WRP site and Bedhampton Springs.
4. Section 7: Pipeline between the WRP site and Otterbourne Water Supply Works (WSW).
5. Section 8: Use of Havant Thicket Reservoir for the storage of recycled water.
6. Section 9: Release from the Eastney Long Sea Outfall (LSO).

1.2.3 Note that Above Ground Plant (AGP) and Break Pressure Tanks (BPT) are included within the component where they are located.

1.2.4 Finally, a summary of the assessment is presented in section 10.

2 Assessment method

2.1 Overview

2.1.1 A published methodology for undertaking WER compliance assessments across all types of water bodies is not available. However, the following relevant guidance and case law exist to support the assessment of various water body types:

1. Planning Inspectorate (2024) Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive [2]: This advice note provides an overview of the WFD and provides an outline methodology for considering the WFD as part of the DCO process.
2. Environment Agency (2023) Clearing the Waters for All [3]: Outlines a methodology for assessing impacts on transitional and coastal water bodies.
3. Environment Agency (2016) WFD risk assessment [4]: This provides information on how to assess the risk of a proposed activity, as well as guidance for proposed developments planning to undertake activities that would require a flood risk activity permit.
4. Environment Agency (2016) Protecting and improving the water environment [5]: Provides guidance on the WFD compliance of physical works and other activities in river water bodies.
5. EUECJ C-461-13. Bund für Umwelt und Naturshutz Deutschland eV v Bundesrepublik Deutschland (2015) [6]: This case confirms details around determining whether there has been a deterioration in the status of a water body.

2.1.2 Whilst some of the sources cited in paragraph 2.1.1 were originally written prior to the UK leaving the European Union, and as such refer to ‘WFD’ rather than ‘WER,’ they have not been withdrawn and remain applicable following the UK’s exit from the European Union.

2.1.3 For the purposes of this assessment, the methodologies outlined in the guidance documents listed in paragraph 2.1.1 have been brought together to develop an assessment methodology that can be used for all types of water bodies. The methodology used in this assessment therefore includes the following three stages:

1. Stage 1 Screening: This stage consists of an initial screening exercise to separate each component of the Proposed Development into activities. Water bodies potentially at risk from these activities are then identified.
2. Stage 2 Scoping: This stage identifies whether there is a pathway for effect (or risk) on water body compliance parameters (receptors) for the water bodies identified in Stage 1 and determines whether further assessment is required for any activities.
3. Stage 3 Impact Assessment: This stage assesses whether any proposed activities that have been carried forward from Stage 2 have the potential to cause deterioration, and whether any such deterioration would have an effect on the status of one or more quality elements at water body level and on water bodies with hydrological connectivity.

2.2 Stage 1 screening

2.2.1 The screening process includes two parts:

1. Identification of activities associated with the Proposed Development that could have effects on the water environment.
2. Identification of water bodies that could be affected by these activities.

2.2.2 In the first part of the screening exercise, the Proposed Development is separated into components (see ES Chapter 3 Description of the Proposed Development, Volume I, (Document reference 6.1, DCO Volume 6)) which are then further separated in this assessment, into activities covering both the construction and operation and maintenance phases.

2.2.3 In the second part of the screening exercise, the water bodies that could potentially be affected by the activities are identified on the basis of whether there is a potential pathway for effect. This is determined using the following criteria with reference to the South East RBMP, as presented in the online Catchment Data Explorer [7]:

1. All surface water bodies within which the activities occur.
2. Any surface water bodies that have direct connectivity with the water bodies within which the activities would occur (e.g. upstream and downstream) that could potentially be affected by the activities.
3. Any groundwater bodies that underlie the activities or are hydrologically connected to these water bodies.

2.2.4 The Applicant is not seeking consent for decommissioning. However, decommissioning effects are considered to be no greater than during construction of the Proposed Development. This is due to the likely nature and scale of decommissioning activities being similar or less than construction activities. The assessment of decommissioning effects assumes that works would follow good industry practice in place at the time, with control measures expected to be similar in nature to those in the Outline CEMP (Document reference 7.1, DCO Volume 7). Decommissioning activities are therefore not considered separately in this WER compliance assessment.

2.3 Stage 2 scoping

2.3.1 This stage identifies whether there is a pathway for effect (i.e., a risk) on water body compliance parameters (i.e., receptors) for any of the water bodies identified in Stage 1: Screening as a result of the activities associated with the Proposed Development.

2.3.2 At this stage, water bodies can be scoped out of further assessment if it can be satisfactorily demonstrated that there is no pathway for effect on compliance parameters. Activities may also be scoped out if embedded mitigation would be in place to remove the pathway for effect. If a pathway for effect exists, or it cannot be demonstrated that there is no pathway for effect, it will be necessary to undertake Stage 3: Impact Assessment.

2.3.3 Note that it may be possible for relatively straightforward reasons to scope out some activities. Where there is uncertainty over the potential for an activity to have

an effect, a precautionary approach has been taken and the activity scoped into Stage 3: Impact Assessment.

2.4 Stage 3 impact assessment

2.4.1 This stage considers whether any activities that have been carried forward from Stage 2 would adversely affect quality elements, RBMP mitigation measures or Protected Areas and change water body status.

2.4.2 Potential measures to avoid effects or deliver improvements or mitigation measures have been investigated if it is established that either:

1. The component (and therefore the Proposed Development) is likely to cause deterioration in status or prevent achievement of environmental objectives under the WER and/or the implementation of mitigation or improvement measures set out in the RBMP.
2. An opportunity may exist to contribute to improving water body status.

2.4.3 Where applicable, Stage 3 considers potential measures and, where appropriate, commits to their inclusion as part of the Proposed Development (i.e. as secondary mitigation) or secured in relevant management plans (i.e. as tertiary mitigation).

2.5 Engagement

2.5.1 As the competent authority for the WER in England, the Environment Agency has been engaged to discuss the approach and the emerging findings of this assessment. This engagement has been undertaken as part of the Biodiversity and Water Environment Environmental Impact Assessment (EIA) Working Group and the Technical Working Group. Additional technical engagement outside these groups has been undertaken to discuss water quality modelling.

2.5.2 The outcomes of the engagement process are presented in the Combined Stakeholder Engagement Plan – Environment Agency, Natural England and Marine Management Organisation (Document reference 5.8, DCO Volume 5) and summarised in ES Chapter 19 Water environment, Volume I, (Document reference 6.1, DCO Volume 6).

3 Proposed Development description

3.1 Description of the Proposed Development

3.1.1 A summary of the Proposed Development and each component is provided below. A full description of the Proposed Development and construction methodology is provided in ES Chapter 3 Description of the Proposed Development, Volume I (Document reference 6.1, DCO Volume 6).

3.1.2 The Proposed Development comprises the construction, operation and maintenance of the following components:

1. Water Recycling Plant (WRP) and associated pumping stations.
2. Pipelines between Budds Farm Wastewater Treatment Works (WTW) and the WRP site.
3. Pipelines between the WRP site and Bedhampton Springs, connecting to pipelines being delivered by Portsmouth Water between Bedhampton Springs and Havant Thicket Reservoir.
4. Pipeline between the WRP site and Otterbourne Water Supply Works (WSW).
5. Above Ground Plant (AGP) comprising Intermediate Pumping Stations (IPS) and Break Pressure Tanks (BPT) located along the Pipeline between the WRP site and Otterbourne WSW.

3.1.3 The Proposed Development would also comprise the use of the following infrastructure:

6. Havant Thicket Reservoir (which has been consented separately by Portsmouth Water and is currently under construction) for the storage of recycled water.
7. The existing Eastney Long Sea Outfall (LSO), Eastney Pumping Station (PS), and associated Eastney Transfer Tunnel (TT) for the release of reject water from the WRP site.
8. Pipelines and other related works (which have been consented separately by Portsmouth Water) for the transfer of recycled water and source water between Bedhampton Springs and Havant Thicket Reservoir.

3.1.4 The construction and operation of the Proposed Development would be supported by other temporary and permanent works.

3.1.5 The Project would require the demolition, disassembly and/or temporary relocation of a number of small structures.

3.2 Reducing environmental effects

Primary mitigation measures

3.2.1 A range of measures have been embedded into the design of the Proposed Development to avoid or reduce environmental effects. These measures therefore form part of the design that has been assessed.

3.2.2 The primary mitigation measures relevant for the WER compliance assessment include:

1. The locations of AGP and the corridor of the Pipelines, as detailed in ES Chapter 4 Consideration of alternatives, Volume I (Document reference 6.1, DCO Volume 6), have been selected to avoid or reduce environmental effects as far as reasonably practicable.
2. All Main Rivers would be crossed using trenchless crossing techniques. Additional information is provided in Appendix 19.4 Watercourse crossing schedule, Volume II (Document reference 6.2, DCO Volume 6).
3. All tunnels and trenchless crossings of watercourses and other barriers would use a methodology that excludes groundwater.
4. The Pipeline would be installed at a minimum of 2.5m below the bed of watercourses crossed using trenchless techniques. This includes all Main Rivers and many Ordinary Watercourses; additional information is provided in Appendix 19.4 Watercourse crossing schedule, Volume II (Document reference 6.2, DCO Volume 6).
5. The Pipeline would be installed at a minimum of 1.5m below the bed of watercourses crossed using open trenching. This includes some Ordinary Watercourses; additional information is provided in Appendix 19.4 Watercourse crossing schedule, Volume II (Document reference 6.2, DCO Volume 6).
6. Tunnel shafts associated with subsurface excavations would be avoided where possible in the chalk aquifer (particularly in Source Protection Zones (SPZ)).
7. Leak detection would be present on the Pipelines, either via flow and pressure monitoring or active acoustic monitoring. This has been designed to automatically shut the Pipeline system down in the event a leak starts. Therefore, no long-term leakages would occur.
8. Phosphorus would be removed using reverse osmosis membranes within the WRP site, as described in section 3.6 of ES Chapter 3 Description of the Proposed Development, Volume I (Document Reference 6.1, Volume 6).
9. The Operational Environmental Management Plan (OEMP) (Document reference 7.7, DCO Volume 7) includes details of washout management measures for isolation valves, air valves and washout valves.
10. Washout valves would be used during the commissioning process and are anticipated to be tested approximately every six months during normal operation. All washout water would be collected directly in a tanker for disposal at an appropriately licenced facility, with no washout water released to the environment.

Tertiary mitigation measures

3.2.3 Good construction practices are set out in the Outline Construction Environmental Management Plan (CEMP) (Document reference 7.1, DCO Volume 7) and would manage the effects of construction. The measures contained in the Outline CEMP (Document reference 7.1, DCO Volume 7) are secured by a requirement in Schedule 2 of the DCO. A detailed CEMP(s) will be produced and submitted for approval in accordance with the corresponding requirement in Schedule 2 of the DCO.

3.2.4 The measures of relevance to the WER compliance assessment are:

1. A Construction Drainage Plan will be prepared by the Contractor, once appointed, to manage the quality and quantity of construction stage drainage. Measures required to be included in the Construction Drainage Plan are set out in the main body of the Outline CEMP (under WE5 and WE6) (Document Reference 7.1, Volume 7).
2. A range of measures would be incorporated to manage potential contamination risks.
3. Measures to manage effects where trenched crossings are to be carried out on an Ordinary Watercourse. Temporary dams would be used to create a dry area of channel in which to excavate a trench and install the pipeline, and river flows would be maintained through the use of pumps, pipes or flumes. These measures, required to be included in the Construction Drainage Plan, are set out in the main body of the Outline CEMP (under WE5 and WE6) (Document Reference 7.1, Volume 7).
4. Measures to manage effects where temporary culverts are required for crossings (e.g. where haul road access across watercourses is required).
5. A Drilling Fluid Management Plan (DFMP) will be developed by the Contractor to document how risks of any fluid breakouts would be reduced, and in the event of an outbreak from drilling or tunnelling works during construction how any breakout would be managed and mitigated, to reduce environmental impacts.
6. A Voids Treatment Protocol is to be developed by the Contractor to document how voids encountered during construction within the chalk would be mitigated to avoid impacts on groundwater bodies.
7. Where the pipeline has the potential to be installed below groundwater level in permeable strata, clay stanks would be used at regular intervals to prevent the pipeline acting as a preferential pathway.
8. A detailed Water Monitoring Plan is to be developed by the Contractor to ascertain the pre-construction baseline and verify predicted impacts to the local surface water and groundwater regime from temporary and permanent construction effects during and post-construction. ES Appendix 19.9 Outline Water Monitoring Plan, Volume II, (Document Reference 6.2, Volume 6) will form the basis of the detailed Water Monitoring Plan and includes trigger levels and action plans (to enable mitigation to be implemented based on the monitored conditions).
9. Establish and implement appropriate measures for the management of wastewater generated from construction activities, including dewatering operations, prior to release into foul sewers, groundwater, or surface water. All releases must comply with applicable regulatory requirements, and the necessary consents and permits shall be secured.

3.2.5 In addition, a range of operational management plans and strategies would be developed to manage potential impacts that could occur during the operation of the Proposed Development. These would include:

1. Permanent operational drainage strategies to control runoff and off-site flood risk from permanent above-ground infrastructure have been developed as part of the Flood Risk Assessment process. These include measures to control the

supply of water, sediment and contaminants from the AGP and WRP and are presented within the Sustainable Drainage Systems Strategy in ES Appendix 19.1 Flood Risk Assessment, Volume II (Document Reference 6.2, Volume 6).

2. The design of piled foundations and deep structures has been informed by Foundations Works Risk Assessments (FWRA) undertaken in accordance with relevant EA published guidance. The FWRA will be prepared by the Contractor in accordance with the Outline CEMP (Document Reference 7.1, Volume 7).
3. Maintenance activities during the operational phase that require excavation are subject to the same management measures as described in the Outline CEMP (Document Reference 7.1, Volume 7).
4. Washout valves would be tested every six months during normal operation. All washout water would be collected directly in a tanker for disposal at an appropriately licenced facility, with no washout water released to the environment. The OEMP (Document reference 7.7, DCO Volume 7) includes details of washout management measures.
5. An Invasive Non-Native Species (INNS) Biosecurity Plan (Document reference 7.10, DCO Volume 7) has been developed for the Proposed Development. The INNS risks relevant to the assets and raw water transfers of the Proposed Development are identified in ES Chapter 8 Terrestrial and freshwater biodiversity, Volume I (Document reference 6.1, DCO Volume 6), and measures to mitigate these risks during construction and operation are set out in the INNS Biosecurity Plan (Document reference 7.10, DCO Volume 7).

3.2.6 Decommissioning would be subject to the appropriate permits, consents and regulatory requirements at the relevant time. Decommissioning activities are expected to follow good industry practice in place at the time and are anticipated to be similar in nature to measures contained in the Outline CEMP (Document Reference 7.1, DCO Volume 7).

3.2.7 The measures contained in these plans are secured by a requirement in Schedule 2 of the DCO. A detailed CEMP(s) will be produced and submitted for approval in accordance with the corresponding requirement in Schedule 2 of the DCO.

Secondary mitigation

3.2.8 Secondary mitigation is included at Stage 3: Impact assessment if a likely deterioration in status is predicted or the likely prevention of achievement of objectives and/or the implementation of mitigation and improvement measures set out in the RBMP is identified. These secondary mitigation measures are over and above those embedded within the design (primary mitigation) and those identified as a result of existing legislative requirements, or actions that are considered to be standard best practices used to manage commonly occurring environmental effects (tertiary mitigation).

4 Water Recycling Plant site

4.1 Component description

4.1.1 The WRP site is located approximately 300m north-west of Budds Farm WTW, to the north of Harts Farm Way, south of the A27 and west of the Hermitage Stream. The WRP site would take in highly treated wastewater from Budds Farm WTW and use advanced treatment techniques to convert the treated wastewater into purified recycled water.

4.1.2 The WRP site would consist of a main process building where the water recycling process would be located and undertaken, kiosks for control equipment, administration buildings and parking facilities. Several large holding tanks and chemical storage units would be required for operation of the WRP site. Access to the WRP site would be provided from Harts Farm Way to the south.

4.1.3 Three pumping stations would be required at the WRP site, as described in section 3.1.

4.1.4 The WRP site would receive treated wastewater from Budds Farm WTW. Within the WRP site, the treated wastewater would be pumped through two filtering processes. The first of these, micro-filtration, is to remove remaining impurities that could block the membranes during reverse osmosis. The reverse osmosis process removes dissolved salts, impurities, bacteria and pharmaceuticals. The next stage within the water recycling process would be the advanced oxidation process involving the use of ultraviolet light and hydrogen peroxide to break down any remaining impurities. To ensure the water is stable for onward pumping and blending, minerals such as calcium and magnesium salts removed during the earlier stages of treatment would be added back in. The water recycling process would reduce the phosphorus content of the recycled water to levels determined by the EA, and this would be subject to an environmental permit. Phosphorus would be removed using membranes within the WRP site.

4.1.5 Surface water at the WRP site would be attenuated and treated through a SuDS. This would comprise an outfall to release surface water into the Hermitage Stream. The outfall would consist of a concrete lined channel running from an attenuation basin within the WRP site to a concrete headwall structure which would release into the tidal Hermitage Stream.

4.2 Stage 1: Screening

Purpose of this section

4.2.1 This section divides the component into activities (covering both construction and operational phases) and identifies the water bodies potentially at risk using the information included on water body extent in the Catchment Data Explorer [7].

Identification of activities

4.2.2 This component has been separated into activities in line with the requirements of guidance produced by the EA [3] and the advice note produced by the Planning Inspectorate [2]. These activities are listed in Table 4-1.

Table 4-1 Summary of activities for the component 'Water Recycling Plant site'

Reference number	Activity	Description
Construction		
C1	Construction of WRP site	A construction compound would be located at the WRP site (see ES Figure 1.1 Location of the Proposed Development and Order Limits, Volume III (Document reference 6.3, DCO Volume 6) for labelled locations of construction compounds). This would enable the construction of the WRP site and tunnel shafts associated with the pipelines. This activity includes site preparation, laying reinforced concrete slabs, piling, building construction, construction compound (including surface water drainage and wastewater management). To construct the SuDS outfall to the tidal Hermitage Stream, a temporary cofferdam may be required which may require sheet piling. Note that effects associated with the construction of the pipelines and tunnels that connect the WRP to other components of the Proposed Development are assessed separately in sections 5, 6 and 7.
Operation		
O1	Presence of WRP and associated infrastructure	Operational use of the site and associated water management measures (including surface water drainage and wastewater management). Note that effects associated with the operation of the pipelines and tunnels that connect the WRP to other components of the Proposed Development are assessed separately in sections 5, 6 and 7. Operational releases of treated water from the WRP into Havant Thicket Reservoir are considered in section 8, and operational releases from the WRP via Eastney LSO are considered in section 9.

Water body identification

4.2.3 The component is shown against surface water body boundaries in ES Appendix 19.2 Figure 1 Water Recycling Plant site against water body boundaries, Volume III, (Document reference 6.3, DCO Volume 6) and groundwater body boundaries in ES Appendix 19.2 Figure 2 Order Limits and groundwater body boundaries, Volume III, (Document reference 6.3, DCO Volume 6). A screening exercise has been undertaken to identify which of the water bodies have the potential to be affected by the activities associated with this component, with water bodies being identified based on the methodology described in section 2.2.

4.2.4 In addition to water body mapping, potential hydrological connectivity has been determined with reference to Main Rivers, Ordinary Watercourses and surface water flow routes that may not be shown on published mapping (identified using EA flood mapping). The Stage 1 screening process therefore considers the water bodies in which catchments the activities are located, and where relevant, connected water bodies upstream and downstream. Full details of the baseline

hydrogeology and surface water conditions of the site are provided in ES Chapter 19 Water environment, Volume I (Document reference 6.1, DCO Volume 6).

4.2.5 The results of the screening stage are presented in Table 4-2.

Table 4-2 Results of screening assessment for the Water Recycling Plant site

Water body name and identification (ID) number	Type	Description	Screened in?	Justification
East Hants Chalk (GB40701G502700)	Groundwater	This water body is at Poor Overall Status due to Quantitative Dependent Surface Water Body Status (Quantitative Status Element), Chemical Drinking Water Protected Area and General Chemical Test (Chemical Status Element). Trend assessment shows as upward trend. Reasons for Not Achieving Good (RNAG) and affected quality element: • Groundwater abstraction (quantitative dependent surface water body status) • Poor nutrient management (general chemical test, chemical drinking water protected area, trend assessment) Objectives: • Good Overall Status by 2060 • Good Quantitative Status by 2027 • Good Chemical Status by 2060	Yes	The water body underlays the component.
South Hants Lambeth Group (GB40702G503700)	Groundwater	Good Overall Status.	Yes	The water body underlays Budds Farm WTW, which incorporates part of this component.

Water body name and identification (ID) number	Type	Description	Screened in?	Justification
Langstone Harbour (GB580705130000)	Transitional	This water body is designated as a HMWB and is at Moderate Overall Status due to biological quality elements angiosperms and saltmarsh. Supporting elements assessment (surface water) and mitigation measures assessment are also Moderate. Chemical Status in 2019 was assessed as Fail due to mercury and its compounds and polybrominated diphenyl ethers (PBDE). In 2022 Chemical Status is listed as not requiring assessment. RNAG and quality element affected: • Physical modification (angiosperms, mitigation measures assessment) • Unknown (pending investigation) (mercury and Its compounds) • Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) Objectives: • Good Ecological Potential by 2027 • Good Chemical Status by 2063	Yes	The component is located within the coastal catchment of Langstone Harbour. This water body would receive operational releases from the WRP SuDS via the tidal section of the Hermitage Stream which is within this waterbody.

Water body name and identification (ID) number	Type	Description	Screened in?	Justification
Langstone Oysterbeds (GB510070073000)	Transitional	This water body is designated as an AWB and is at Good Ecological Potential, although note supporting elements (surface water) are at Moderate. Chemical Status in 2019 was assessed as Fail due to mercury and its compounds and PBDE. In 2022 Chemical Status was listed as not requiring assessment. RNAG and quality element affected: • Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) Objectives: • Good Ecological Potential by 2015 • Good Chemical Status by 2063	Yes	Langstone Oysterbeds is hydrologically connected to the Langstone Harbour water body, which would receive operational releases from the WRP SuDS.
Hermitage Stream (GB107042016370)	River	This water body is designated as a HMWB and is at Moderate Ecological Status although note that fish is classified as Poor. Elements at Moderate Status are invertebrates, phosphate, pH, supporting elements (surface water) and mitigation measures assessment: Moderate or less Chemical Status in 2019 was assessed as Fail due to mercury and its compounds and PBDE. In 2022 Chemical Status is listed as not requiring assessment. RNAG and quality element affected: • Physical modification (fish, invertebrates, pH, mitigation measures assessment) • Point source pollution: (invertebrates, phosphate, pH) • Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) Objectives:	No	The component is not located within this water body catchment. Operational releases from the WRP SuDS would be downstream of this water body (in the tidal section of the Hermitage Stream, which is part of the Langstone Harbour water body). The presence of a weir at the tidal limit of the water body prevents upstream movement of flows from the tidal section of the Hermitage Stream into

Water body name and identification (ID) number	Type	Description	Screened in?	Justification
		• Good Ecological Potential by 2027 • Good Chemical Status by 2063		the non-tidal section upstream, thereby limiting upstream connectivity between the two water bodies.

4.2.6 The screening exercise demonstrates that the component could potentially have an impact on the following water bodies:

1. Langstone Harbour (GB580705130000) (and therefore Langstone Oysterbeds (GB510070073000))
2. East Hants Chalk (GB40701G502700)
3. South Hants Lambeth Group (GB40702G503700)

4.2.7 Annex A provides summary data for all water bodies relevant to this WER compliance assessment.

4.3 Stage 2: Scoping

Introduction

4.3.1 This section presents the results of scoping stage undertaken on the water bodies identified in Table 4-2. Scoping examines the potential for the activities identified to impact water bodies and their quality elements, any RBMP mitigation measures identified by the EA, and any associated Protected Areas. The results of the scoping stage determine which water bodies and quality elements require further assessment as part of Stage 3: Impact Assessment.

Impacts of activities on water body quality elements

Assessment of potential mechanisms for impact

4.3.2 The results of this scoping stage are summarised in Table 4-3. This table demonstrates that the activities associated with this component do not have the potential to directly or indirectly affect the biological, physico-chemical or hydromorphological quality elements of the Langstone Harbour water body (GB580705130000) (and therefore the hydrologically-connected Langstone Oysterbeds water body (GB510070073000)) or the quantity and chemical quality elements of the East Hants Chalk (GB40701G502700) and South Hants Lambeth Group (GB40702G503700) groundwater bodies.

Table 4-3 Activities with the potential to affect water body quality elements and status for the Water Recycling Plant site

Activity	Water body	Scoping results
Construction		
C1 (construction of the WRP and pumping stations)	East Hants Chalk (GB40701G502700) South Hants Lambeth Group (GB40702G503700)	**Quantity:** Structures on the WRP site would be supported on piles, and shallow excavations would be required to accommodate pile caps or prepare the piling platform. The shallow excavations are unlikely to encounter the groundwater table, although some groundwater control measures may be required to manage perched groundwater. Piling activities would not require dewatering. A range of measures have been included in the Outline CEMP, (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects on groundwater receptors (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on the groundwater bodies. Effects on groundwater quantity are therefore scoped out.
		Quality: Due to the previous use of the land as a landfill it is most likely that at least some imported material would be required, and any contaminated and hazardous materials would be handled and/or removed in line with relevant requirements, standards and guidance, as described in ES Chapter 11 Land quality and ground conditions, Volume I (Document reference 6.1, DCO Volume 6). Measures such as casting piles in situ to reduce the risk associated with landfill leachate, employing continuous flight auger piles, undertaking proportional remediation works and the adoption of best practice construction measures embedded into the Outline CEMP, (Document reference 7.1, DCO Volume 7) (section 3.2) mean that there is no pathway for effect on the groundwater bodies . Effects on groundwater quality are therefore scoped out.
	Langstone Harbour (GB580705130000) Langstone Oysterbeds (GB510070073000)	**Hydromorphology:** The WRP site would be located in the onshore coastal catchment that drains directly into Langstone Harbour. There are no freshwater Main Rivers located directly within the footprint of this component and the Ordinary Watercourse to the south of the WRP site would not be disturbed. Construction activities would be required on the right (western) bank of the tidal Hermitage Stream (which forms part of this water body) to facilitate the installation of the SuDS outfall. A temporary cofferdam may be required, which would as a worst-case require sheet piling. The sheet piling would be installed from the bank top, and construction activities would be confined to within the sheet piling, thereby minimising the pathway for effects on the hydromorphology of the water

Activity	Water body	Scoping results
		body. Furthermore, the bed and banks of the channel would be reinstated once the outfall has been installed, and any sheet piling removed. The use of a temporary cofferdam to minimise disturbance and measures set out in the Outline CEMP (Document reference 7.1, DCO Volume 7) (as summarised in section 3.2 of this report) are considered sufficient to avoid a pathway for effect on the hydromorphology of Langstone Harbour or Langstone Oysterbeds. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: There are no freshwater Main Rivers located directly within this component and the Ordinary Watercourse in the vicinity of the WRP site would not be disturbed. Construction activities would be required on the right (western) bank of the tidal Hermitage Stream (which forms part of this water body) to facilitate the installation of the SuDS outfall. A temporary cofferdam may be required, which would as a worst-case require sheet piling. The use of a temporary cofferdam would allow construction activities to be undertaken in dry conditions, in isolation from the adjacent tidal river. Furthermore, a range of measures have been included in the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid the supply of potential contaminants during construction to the water environment (as summarised in section 3.2 of this report). These measures are considered sufficient to avoid a pathway for effect on the chemistry and physico-chemistry of Langstone Harbour or Langstone Oysterbeds. Effects on chemistry and physico-chemistry are therefore scoped out.
		Biology: There are no freshwater Main Rivers located directly within this component and the Ordinary Watercourse in the vicinity of the WRP site would not be disturbed. Construction activities would be required on the right (western) bank of the tidal Hermitage Stream (which forms part of this water body) to facilitate the installation of the SuDS outfall. A temporary cofferdam may be required, which would as a worst-case require sheet piling. Tertiary mitigation measures including good construction practices to minimise disturbance during piling works are set out in the Outline CEMP (Document reference 7.1, DCO Volume 7). As a result of implementation of these measures, ES Chapter 9 Marine biodiversity, Volume I (Document reference 6.1, DCO Volume 6) assesses the impact of underwater noise and vibration on biological quality elements as negligible. These measures are considered sufficient to avoid a pathway for effect on the biology of Langstone Harbour or Langstone Oysterbeds.

Activity	Water body	Scoping results
		Effects on biology are therefore scoped out.
Operation		
O1 (presence of WRP)	East Hants Chalk (GB40701G502700) South Hants Lambeth Group (GB40702G503700	**Quantity:** The presence of the new infrastructure would not impact on the groundwater body due to the operational drainage management measures set out in ES Appendix 19.1 Flood Risk Assessment, Volume II (Document reference 6.2, DCO Volume 6) and the use of Foundation Works Risk Assessments (FWRAs) to inform piled foundation designs. FWRAs are be prepared by the Contractor in accordance with the Outline CEMP (Document Reference 7.1, Volume 7). These measures are considered sufficient to avoid a pathway for effect on the groundwater body. Effects on groundwater quantity are therefore scoped out.
		Quality: The presence of the new infrastructure would not impact on the groundwater body due to the operational drainage management measures set out in ES Appendix 19.1 Flood Risk Assessment, Volume II (Document reference 6.2, DCO Volume 6) and the use of FWRAs to inform piled foundation designs. FWRAs are be prepared by the Contractor in accordance with the Outline CEMP (Document Reference 7.1, Volume 7). These measures are considered sufficient to avoid a pathway for effect on the groundwater body. Effects on groundwater quality are therefore scoped out.
	Langstone Harbour (GB580705130000) Langstone Oysterbeds (GB510070073000)	**Hydromorphology:** The WRP SuDS outfall would consist of a concrete lined channel running from an attenuation basin within the WRP site to a concrete headwall structure which would release into the tidal Hermitage Stream (part of the Langstone Harbour water body). The SuDS outfall to the Hermitage Stream would be designed in line with the Design Principles Document (Document reference 5.11, DCO Volume 5). As described in ES Chapter 19 Water environment, Volume I (Document reference 6.1, DCO Volume 6), the outfall would be located on part of the bank that is already reinforced with concrete bank protection. The presence of a concrete headwall in an already-engineered bank would therefore not lead to a pathway for effect on the water body. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: During operation there would be surface water runoff released to the lower reach of Hermitage Stream via the WRP SuDS outfall downstream of the tidal limit of the watercourse. To assess the potential changes in salinity associated with the release of surface water into the tidal section of the Hermitage Stream, salinity modelling using a calibrated MIKE21 hydraulic

Activity	Water body	Scoping results
		model has been undertaken (Appendix 19.12 Water Recycling Plant site Sustainable Drainage System dispersion modelling, Volume II, (Document reference 6.2, DCO Volume 6). The model simulations show that the overall change in salinity due to the SuDS release compared with the natural fluctuations in ambient salinity levels is small (typically less than 1 PSU). The greatest change occurs in the main channel during the neap tide simulation, as natural variations in salinity are lower during this period due to the decreased tidal range. In addition, the SuDS design would include control measures suitable for the pollution hazard index (as set out in the Design Principles Document, (Document reference 5.11, DCO Volume 5). This means that there is no pathway for effect on the physico-chemistry of the water body. Effects on physico-chemistry are therefore scoped out.
		Biology: As described in the rows of this table above, the Proposed Development incorporates measures to prevent significant changes to hydromorphology and physico-chemistry, including installation of new structures on part of the river bank that is already protected with concrete, and best practice pollution control measures. These are described fully in section 3.2 of this report, with additional detail provided in the Design Principles Document (Document reference 5.11, DCO Volume 5) and ES Chapter 19 Water environment, Volume I (Document reference 6.1, DCO Volume 6). These measures are considered to be sufficient to prevent a pathway for effect on the biology of the water body (as described further in ES Chapter 9 Marine biodiversity, Volume I (Document reference 6.1, DCO Volume 6). Effects on biology are therefore scoped out.

Impacts of Proposed Development activities on River Basin Management Plan mitigation measures

River Basin Management Plan mitigation measures applicable to each water body

4.3.3 The South East RBMP [8] does not identify any RBMP mitigation measures for Langstone Oysterbeds (GB510070073000), therefore this water body is not considered further in this part of the assessment.

4.3.4 However, a range of RBMP mitigation measures have been identified in the RBMP [8] for Langstone Harbour (GB580705130000) (Table 4-4).

Table 4-4 Potential impacts of the Water Recycling Plant site on River Basin Management Plan mitigation measures

RBMP mitigation measure	Status	Potential impact
Langstone Harbour (GB580705130000)		
Managed realignment of flood defence assets	Not in Place	A small outfall would be constructed to release surface water from the WRP site into the tidal Hermitage Stream, which forms part of the Langstone Harbour water body. The outfall and headwall would be designed with a small footprint to minimise further modifications to the existing protected banks (as set out in the Design Principles Document, (Document reference 5.11, DCO Volume 5)). There are several existing outfalls along this reach of the water body, and any future bank works would need to modify these outfalls. The modification of surface water outfalls is not considered to pose a significant technical constraint and therefore the new outfall would not preclude the implementation of mitigation measures in the future. The construction and operation of this structure would not therefore prevent these RBMP mitigation measures being put in place in the future.
Activity to create new habitat where it did not exist before	Not in Place	
Removal/softening of hard engineering structures that modify natural bank profile	Not in Place	
Retro-fitting existing structures to accommodate niche habitats, as opposed to more substantial structural modifications that would be likely to deliver greater hydromorphological change but may not be possible given the use	Not in Place	
Leaving habitat or parts of natural habitat while undertaking operations or maintenance in a water body	Not in Place	

Assessment of potential mechanisms for impact

4.3.5 Table 4-4 also presents an assessment of potential impacts of the activities associated with the component on RBMP mitigation measures. This demonstrates that the activities would not prevent the future implementation of the RBMP mitigation measures that are not yet in place. Impacts on RBMP mitigation measures do not, therefore, require assessment in Stage 3: Impact Assessment.

Impacts of the activities on Protected Areas

Protected Areas

4.3.6 The Clearing the Waters for All guidance [3] recommends further assessment of Protected Areas that are within 2km of a new project. Protected Areas within 2km of this component are listed in Table 4-5 and shown in ES Appendix 19.2 Figure 3, Water Recycling Plant site against Protected Areas within a 2km buffer, Volume III, (Document reference 6.3, DCO Volume 6).

Table 4-5 Protected Areas within 2km

Protected Area within 2km
Chichester, Langstone and Portsmouth Harbours Eutrophic NVZ
Chichester and Langstone Harbours SPA/Ramsar
Solent Maritime SAC
Langstone Harbour Shellfish Water
Chichester Harbour (Emsworth Channel) Shellfish Water
Langstone Harbour UWTDPA
East Hants Chalk DrWPA

Assessment of potential mechanisms for impact

4.3.7 The Solent Maritime SAC and Chichester and Langstone Harbours SPA/Ramsar, are both NSN sites which are located within 2km of this component. WER compliance assessments require the consideration of the potential effects on quality elements (hydromorphological, physico-chemical, chemical and biological), many of which support ecological interest features for which the NSN Protected Areas are designated. The Habitats Regulations Assessment – Stage 2 Appropriate Assessment and Marine Conservation Zone – Stage 1 Assessment (HRA) (Document reference 5.2, DCO Volume 5)) therefore builds on the output of WER compliance assessments to assess the potential effects on designated site interest features. To avoid duplication with the HRA, impacts on the designated site interest features themselves are not considered in this WER compliance assessment and instead are covered in the HRA (Habitats Regulations Assessment – Stage 2 Appropriate Assessment and Marine Conservation Zone – Stage 1 Assessment (Document reference 5.2, DCO Volume 5)) .

4.3.8 The following Protected Areas, not related to NSN sites, are located within 2km of the component:

1. Chichester, Langstone and Portsmouth Harbours Eutrophic NVZ
2. Langstone Harbour Shellfish Water
3. Chichester Harbour (Emsworth Channel) Shellfish Water
4. Langstone Harbour UWTDPA
5. East Hants Chalk DrWPA

4.3.9 The Chichester, Langstone and Portsmouth Harbours Eutrophic NVZ and Langstone Harbour UWTDPA are designated to ensure that inputs of nutrients, chemicals and wastewater-related pathogens are controlled. Wastewater generated in construction compounds, for example via welfare facilities, could

potentially release nitrates and other substances if released untreated to the water environment. However, all wastewater generated during construction and operation would be contained and adequately treated (alongside the securing of permits if required) to ensure that the Proposed Development activities would not result in nutrient inputs from the WRP site (see section 3.2). Note that any changes in nutrient loading are assessed in detail in ES Appendix 19.7 Nutrient Assessment, Volume II, (Document reference 6.2, DCO Volume 6).

4.3.10 The Langstone Harbour and Chichester Harbour (Emsworth Channel) Shellfish Waters are designated to protect water quality in areas that support economically significant aquatic species. As described in Table 4-3, the supply of contaminants such as fine sediment, construction materials, fuel and lubricants during construction would be mitigated by the measures to manage the quality of construction-stage drainage set out in section 3.2. These would prevent effects on the Shellfish Waters. Drainage from the WRP site during operation would also be managed and treated prior to release, preventing adverse impacts occurring during the operational phase.

4.3.11 The East Hants Chalk DrWPA is intended to protect the quality of drinking water from the chalk aquifer. As described in Table 4-3, construction activities at the WRP site have the potential to create a preferential pathway between the historical landfill at the WRP site and the underlying aquifers. Should a pathway be created, the quality of the underlying groundwater could be adversely affected. However, the primary and tertiary mitigation measures described in section 3.2 of this report (including casting piles in situ to reduce the risk associated with landfill leachate, employing continuous flight auger piles, undertaking proportional remediation works and the adoption of best practice construction measures included in the Outline CEMP (Document reference 7.1, DCO Volume 7), mean that groundwater quality would not be affected.

4.3.12 The Protected Areas listed in Table 4-5 have therefore been scoped out of Stage 3: Impact Assessment (noting that impacts on NSN Protected Areas are not considered in this WER compliance assessment and instead are covered in the HRA (Habitats Regulations Assessment – Stage 2 Appropriate Assessment and Marine Conservation Zone – Stage 1 Assessment (Document reference 5.2, DCO Volume 5)).

Stage 2 summary

4.3.13 Stage 2 concludes that the potential pathways for effects associated with activities for this component during construction and operation would be managed via the primary and tertiary mitigation measures described in section 3.2.

4.3.14 This means that this component would not result in effects on the status of any water body quality elements or associated Protected Areas, and would not reduce the effectiveness of RBMP mitigation measures or prevent them being implemented in the future. Furthermore, the component would not prevent water body status objectives being achieved in the future.

4.3.15 The component is therefore scoped out of Stage 3: Impact Assessment and is considered to be compliant with the requirements of the WER.

5 Pipelines between Budds Farm Wastewater Treatment Works and the Water Recycling Plant site

5.1 Component description

5.1.1 Two pipelines would be constructed between Budds Farm WTW and the WRP site: one to transfer treated wastewater from Budds Farm WTW to the WRP site and the other to transfer reject water from the WRP site to Budds Farm WTW. The Pipelines would connect to the existing treated wastewater release infrastructure and the reject water would be released via the existing Eastney LSO using the existing Eastney Transfer Tunnel (TT) and Eastney Pumping Station (PS). The Pipelines would be installed on the same route under the Hermitage Stream and Harts Farm Way and would be approximately 700m in length. Treated wastewater would be pumped to the WRP site by a new pumping station, including a kiosk and wet well pumping station, at Budds Farm WTW.

5.2 Stage 1: Screening

5.2.1 This section divides the component (covering both the construction and operational phases) into activities and identifies the water bodies within which the activities would occur using the information included on water body extent in the Catchment Data Explorer [7].

Identification of activities

5.2.2 The component has been separated into activities in line with the requirements of the guidance produced by the EA [3] and the advice note produced by the Planning Inspectorate [2]. These activities are listed in Table 5-1.

Table 5-1 Summary of activities for the component 'Pipelines between Budds Farm Wastewater Treatment Works and the Water Recycling Plant site'

Reference number	Activity	Description
Construction		
C1	Construction of Pipelines and pumping station	The Pipelines would be constructed using trenchless construction methods. To facilitate trenchless construction a construction compound would be located at the Budds Farm WTW and the construction compound at the WRP site would be used. The launch shaft for trenchless construction would be located at the WRP site construction compound, and the reception shaft would be located at the Budds Farm WTW construction compound. The new pumping station would be constructed above-ground within the Budds Farm WTW site.
Operation		

Reference number	Activity	Description
O1	Presence of Pipelines and pumping station	Physical presence and operational use of the Pipelines and pumping station.

Water body identification

5.2.3 ES Appendix 19.2 Figure 4 Pipelines between Budds Farm Wastewater Treatment Works and the Water Recycling Plant site against water body boundaries, Volume III, (Document reference 6.3, DCO Volume 6) and ES Appendix 19.2 Figure 2 Order Limits and groundwater body boundaries, Volume III, (Document reference 6.3, DCO Volume 6), show the component and water bodies.

5.2.4 A screening exercise has been undertaken to identify which of the water bodies have the potential to be affected by the activities associated with this component, with water bodies being identified on the basis of hydrological connectivity following the methodology in section 2.

5.2.5 In addition to water body mapping, potential hydrological connectivity has been determined with reference to Main Rivers, Ordinary Watercourses and surface water flow routes that may not be shown on published mapping (identified using EA flood mapping). This process therefore considers the water bodies in whose catchments the proposed activities are located, and where relevant, connected water bodies upstream and downstream. Full details of the geology, hydrogeology and surface water details of the site are provided in ES Chapter 19 Water environment, Volume I, (Document reference 6.1, DCO Volume 6).

5.2.6 The results of the screening exercise are included in Table 5-2.

5.2.7 This demonstrates that the component could potentially have an impact on the following water bodies:

1. Langstone Harbour (GB580705130000) and Langstone Oysterbeds (GB510070073000)
2. East Hants Chalk (GB40701G502700)
3. South Hants Lambeth Group (GB40702G503700)

5.2.8 Annex A provides summary data for all water bodies relevant to this WER compliance assessment.

Table 5-2 Results of screening assessment for the Pipelines between Budds Farm Wastewater Treatment Works and the Water Recycling Plant site

Water body name and identification (ID) number	Type	Description	Screened in?	Justification
East Hants Chalk (GB40701G502700)	Groundwater	Poor Overall Status due to Quantitative Dependent Surface Water Body Status (Quantitative Status Element), Chemical Drinking Water Protected Area and General Chemical Test (Chemical Status Element). Trend assessment shows as upward trend. RNAG and affected quality element: • Groundwater abstraction (quantitative dependent surface water body status) • Poor nutrient management (general chemical test, chemical drinking water protected area, trend assessment) Objectives: • Good Overall Status by 2060 • Good Quantitative Status by 2027 • Good Chemical Status by 2060	Yes	The water body underlays the component.
South Hants Lambeth Group (GB40702G503700)	Groundwater	Good Overall Status.	Yes	The water body underlays part of Budds Farm WTW, which is connected to this component.

Water body name and identification (ID) number	Type	Description	Screened in?	Justification
Langstone Harbour (GB580705130000)	Transitional	This water body is designated as a HMWB and is at Moderate Overall Status due to biological quality elements angiosperms and saltmarsh. Supporting elements assessment (surface water) and mitigation measures assessment are also Moderate. Chemical Status in 2019 was assessed as Fail due to mercury and its compounds and PBDE. In 2022 Chemical Status is listed as not requiring assessment. RNAG and quality element affected: • Physical modification (angiosperms, mitigation measures assessment) • Unknown (pending investigation) (mercury and Its compounds) • Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) Objectives: • Good Ecological Potential by 2027 • Good Chemical Status by 2063	Yes	The component is located within the coastal catchment of Langstone Harbour.

Water body name and identification (ID) number	Type	Description	Screened in?	Justification
Langstone Oysterbeds (GB510070073000)	Transitional	This water body is designated as a AWB and is at Good Ecological Potential although note supporting elements (surface water) are at Moderate. Chemical Status in 2019 was assessed as Fail due to mercury and its compounds and PBDE. In 2022 Chemical Status was listed as not requiring assessment. RNAG and quality element affected: • Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) Objectives: • Good Ecological Potential by 2015 • Good Chemical Status by 2063	Yes	Langstone Oysterbeds is hydrologically connected to Langstone Harbour.
Hermitage Stream (GB107042016370)	River	This water body is designated as a HMWB and is at Moderate Ecological Status although note that fish is classified as Poor. Elements at Moderate status are invertebrates, phosphate, pH, supporting elements (surface water) and mitigation measures assessment: Moderate or less. Chemical Status in 2019 was assessed as Fail due to mercury and its compounds and PBDE. In 2022 Chemical Status is listed as not requiring assessment. RNAG and quality element affected: • Physical modification (fish, invertebrates, pH, mitigation measures assessment) • Point source pollution: (invertebrates, phosphate, pH) • Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) Objectives:	No	The component is not located within this water body catchment. The presence of a weir at the tidal limit of the water body prevents upstream movement of flows from the tidal section of the Hermitage Stream into the non-tidal section upstream, thereby limiting upstream connectivity between the two water bodies.

Water body name and identification (ID) number	Type	Description	Screened in?	Justification
		• Good Ecological Potential by 2027 • Good Chemical Status by 2063		

5.3 Stage 2: Scoping

Introduction

5.3.1 This section presents the results of the scoping stage undertaken on the water bodies identified in Table 5-2. Scoping examines the potential for the activities identified to affect water bodies and their quality elements, any RBMP mitigation measures identified by the EA, and any associated Protected Areas. The results of the scoping stage determine which water bodies and quality elements require assessment as part of the Stage 3: Impact Assessment.

Impacts of activities on water body quality elements

Assessment of potential mechanisms for impact

5.3.2 The results of the scoping stage are summarised in Table 5-3.

5.3.3 Table 5-3 demonstrates that the activities do not have the potential to directly or indirectly affect the biological, physico-chemical and hydromorphological quality elements of the Langstone Harbour water body (GB580705130000) (and therefore the hydrologically-connected Langstone Oysterbeds water body (GB510070073000)) or the quantity or chemical quality elements of the East Hants Chalk (GB40701G502700) and South Hants Lambeth Group (GB40702G503700) groundwater bodies.

Table 5-3 Activities with the potential to affect water body quality elements and status for the Pipelines between Budds Farm Wastewater Treatment Works and the Water Recycling Plant site

Activity	Water body	Quality element scoping results
Construction		
C1 (construction of the Pipeline)	East Hants Chalk (GB40701G502700) South Hants Lambeth Group (GB40702G503700)	**Quantity:** Excavation of shafts for trenchless construction of the Pipeline at the WRP site and Budds Farm WTW may require dewatering and could penetrate the underlaying chalk aquifer. However, a range of measures have been included in the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects on groundwater receptors (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on the groundwater body. Furthermore, any abstraction for dewatering would be subject to an abstraction licence to control effects on groundwater (unless abstraction is less than $20m^3$ per day, which would mean that it is of low risk to the environment). Construction of the new pumping station would not require significant below-ground excavations. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to the water environment. There is therefore no pathway for effect on these water bodies from the use of washouts in the commissioning process. Effects on groundwater quantity are therefore scoped out.
		Quality: The construction of the Pipelines would be undertaken using a trenchless method of construction. This would require excavation of launch/reception shafts within the WRP site and Budds Farm WTW. These will penetrate the underlying secondary aquifers and the principal chalk aquifer (as well as pass through the landfill in the WRP site, as discussed in the ES Chapter 11 Land quality and ground conditions, Volume I (Document reference 6.1, DCO Volume 6)). However, a range of measures have been included in the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects on groundwater receptors (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on the groundwater body. Construction of the new pumping station would not require significant below-ground excavations.

Activity	Water body	Quality element scoping results
		As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to the water environment. There is therefore no pathway for effect on these water bodies from the use of washouts in the commissioning process. Effects on groundwater quality are therefore scoped out.
	Langstone Harbour (GB580705130000) Langstone Oysterbeds (GB510070073000)	**Hydromorphology:** The Pipelines would be located at least 2.5m beneath the bed of the Hermitage Stream and would be constructed using trenchless construction methods. Additionally, a range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects (as summarised in section 3.2 of this report). These measures are considered sufficient to avoid a pathway for effect on the hydromorphology of the water body. The pumping station would not interact with the water body. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), water from the use of washouts for commissioning would be captured in a tanker and would not be released to surface waters. There is therefore no mechanism for the use of washouts in the commissioning process to impact on this water body. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: The Pipelines would be located at least 2.5m beneath the bed of the Hermitage Stream and would be constructed using trenchless construction methods therefore there are no pathways for effects on this water body. Additionally, a range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects (as summarised in section 3.2 of this report). These measures are considered sufficient to avoid a pathway for effect on the chemistry and physico-chemistry of the water body. The pumping station would not interact with the water body. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface waters. There is therefore no mechanism for washouts to impact on this water body. Effects on chemistry and physio-chemistry are therefore scoped out.
		Biology: As described above, the Outline CEMP (Document reference 7.1, DCO Volume 7) (and summarised in section 3.2 of this report) includes measures to prevent significant changes to the supporting hydromorphological and physico-chemical quality elements,

Activity	Water body	Quality element scoping results
		therefore preventing pathways for effects on biological quality elements. These measures are considered sufficient to avoid a pathway for effect on the biology of Langstone Harbour or Langstone Oysterbeds. Effects on biology are therefore scoped out.
Operation		
O1 (presence of Pipeline)	East Hants Chalk (GB40701G502700) South Hants Lambeth Group (GB40702G503700	**Quantity:** Once operational, the small dimensions of the pipelines mean that any changes to groundwater flows would be negligible. Due to the predominant southerly groundwater flow (as described in ES Appendix 19.3 Hydrogeological Impact Assessment, Volume II (Document reference 6.2, DCO Volume 6)) any highly localised changes in groundwater flows would not represent a pathway for effect on the groundwater body and connected surface waters located to the north. The pumping station would not interact with the groundwater body. The operational use of the Pipelines and pumping station would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2), and there is therefore no pathway for effect on the groundwater body. Effects on groundwater quantity are therefore scoped out.
		Quality: Once operational, the pipelines would not impact on groundwater quality. Furthermore, the pipelines would be located at the southern boundary of the groundwater body, and due to the predominant southerly groundwater flow (as described in ES Appendix 19.3 Hydrogeological Impact Assessment, Volume II (Document reference 6.2, DCO Volume 6)) any highly localised changes in groundwater flow pathways would not represent a pathway for effect on the groundwater body and connected surface waters located to the north. The pumping station would not interact with the groundwater body. The operational use of the Pipelines and pumping station would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2), and there is therefore no pathway for effect on the groundwater body. Effects on groundwater quality are therefore scoped out.
		Hydromorphology: The new pipeline infrastructure would be buried and would not interact with overlying surface waters. The new pumping station would not directly interact with

Activity	Water body	Quality element scoping results
	Langstone Harbour (GB580705130000) Langstone Oysterbeds (GB510070073000)	surface waters. There is therefore no pathway for effect associated with the presence of the new infrastructure on the surface water bodies. The operational use of the Pipelines and pumping station would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2), and there is therefore no pathway for effect on the surface water bodies. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: The new pipeline infrastructure would be buried and would not directly interact with overlying surface waters. The new pumping station would not directly interact with surface waters. There is no pathway for effect associated with the presence of the new infrastructure on the surface water bodies. The operational use of the Pipelines and pumping station would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2), and there is therefore no pathway for effect on the surface water bodies. Effects on chemistry and physio-chemistry are therefore scoped out.
		Biology: The new pipeline infrastructure would be buried and would not directly interact with overlying surface waters, and would not therefore directly affect biology of the watercourse. The new pumping station would not directly interact with surface waters. Furthermore, the lack of effects identified on hydromorphology, chemistry or physico-chemistry above means that biology would not be indirectly affected. There is therefore no pathway for effect associated with the presence of the new infrastructure on the surface water bodies. The operational use of the Pipelines and pumping station would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2), and there is therefore no pathway for effect on the surface water bodies. Effects on biology are therefore scoped out.

Impacts of Proposed Development activities on River Basin Management Plan improvement and mitigation measures

River Basin Management Plan mitigation measures applicable to each water body

5.3.4 The South East RBMP [8] does not identify any RBMP mitigation measures for the Langstone Oysterbeds (GB510070073000) therefore, this water body is not considered further in this part of the assessment.

5.3.5 However, a range of RBMP mitigation measures have been identified in the RBMP [8] for Langstone Harbour (GB580705130000) (Table 5-4).

Table 5-4 Potential Impacts of the Pipelines between Budds Farm Wastewater Treatment Works and the Water Recycling Plant site on River Basin Management Plan mitigation measures

RBMP mitigation measure	Status	Potential impact
Langstone Harbour (GB580705130000)		
Managed realignment of flood defence assets	Not in Place	There are no works proposed to flood defences as a result of the component therefore the proposed activities would not impact on this measure in the future.
Activity to create new habitat where it did not exist before	Not in Place	The new pipeline infrastructure would be buried and would not interact with overlying surface waters. The new pumping station would not directly interact with surface waters. The construction and operation of this infrastructure would not therefore prevent these RBMP mitigation measures being put in place in the future.
Removal/softening of hard engineering structures that modify natural bank profile	Not in Place	
Retro-fitting existing structures to accommodate niche habitats, as opposed to more substantial structural modifications that would be likely to deliver greater hydromorphological change but may not be possible given the use	Not in Place	
Leaving habitat or parts of natural habitat while undertaking operations or maintenance in a water body	Not in Place	

Assessment of potential mechanisms for impact

5.3.6 Table 5-4 presents an assessment of potential impacts of the activities associated with the component on RBMP mitigation measures. This demonstrates that the activities would not prevent the future implementation of the RBMP mitigation measures that are not yet in place. RBMP mitigation measures do not, therefore, require further assessment in Stage 3: Impact Assessment.

Impacts of the activities on Protected Areas

Protected Areas

5.3.7 The Clearing the Waters for All guidance [3] recommends further assessment of new projects on any Protected Areas that are within 2km. Protected Areas within 2km are listed in Table 5-5 and shown in ES Appendix 19.2 Figure 5 Pipelines between Budds Farm Wastewater Treatment Works and the Water Recycling Plant site against Protected Areas within a 2km buffer, Volume III, (Document reference 6.3, DCO Volume 6).

Table 5-5 Protected Areas within 2km

Protected Area within 2km
Chichester, Langstone and Portsmouth Harbours Eutrophic NVZ
Chichester and Langstone Harbours SPA/Ramsar
Solent Maritime SAC
Langstone Harbour Shellfish Water
Chichester Harbour (Emsworth Channel) Shellfish Water
Langstone Harbour UWTDPA
East Hants Chalk DrWPA

Assessment of potential mechanisms for impact

5.3.8 Two NSN sites (Solent Maritime SAC and Chichester and Langstone Harbours SPA/Ramsar) are located within 2km. WER compliance assessments require the consideration of the potential effects on quality elements (hydromorphological, physico-chemical, chemical and biological), many of which support ecological interest features for which the NSN Protected Areas are designated. The HRA (Habitats Regulations Assessment – Stage 2 Appropriate Assessment and Marine Conservation Zone – Stage 1 Assessment (Document reference 5.2, DCO Volume 5)) therefore builds on the output of WER compliance assessments to assess the potential effects on designated site interest features. To avoid duplication with the HRA, impacts on the designated site interest features themselves are not considered in this WER compliance assessment and instead are covered in the HRA (Habitats Regulations Assessment – Stage 2 Appropriate Assessment and Marine Conservation Zone – Stage 1 Assessment (Document reference 5.2, DCO Volume 5)).

5.3.9 The following Protected Areas, not related to NSN sites, are located within 2km of the component:

1. Chichester, Langstone and Portsmouth Harbours Eutrophic NVZ
2. Langstone Harbour Shellfish Water
3. Chichester Harbour (Emsworth Channel) Shellfish Water
4. Langstone Harbour UWTDPA
5. East Hants Chalk DrWPA

5.3.10 The Chichester, Langstone and Portsmouth Harbours Eutrophic NVZ and Langstone Harbour UWTDPA are designated to ensure that inputs of nutrients,

chemicals and wastewater-related pathogens are controlled. Wastewater generated in construction compounds, for example via welfare facilities, could potentially release nitrates and other substances if released untreated to the water environment. However, all wastewater generated during construction and operation would be contained and adequately treated (alongside the securing of permits if required) to ensure that the Proposed Development activities would not result in direct nutrient inputs (see section 3.2). Note that any changes in nutrient loading are assessed in detail in ES Appendix 19.7 Nutrient Assessment, Volume II, (Document reference 6.2, DCO Volume 6).

5.3.11 The Langstone Harbour and Chichester Harbour (Emsworth Channel) Shellfish Waters are designated to protect water quality in areas that support economically significant aquatic species. As described in Table 5-3, the Pipelines would be located under the tidal Hermitage Stream (which forms part of Langstone Harbour) and would be constructed using trenchless construction methods. A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects during construction (as summarised in section 3.2 of this report). Adverse impacts on the Shellfish Waters would not therefore occur during construction. There is no pathway for effect associated with the presence of the new infrastructure on the surface water bodies.

5.3.12 The East Hants Chalk DrWPA is intended to protect the quality of drinking water from the chalk aquifer. As described in Table 5-3, the trenchless construction of the Pipelines would require excavation of launch/reception shafts within the WRP site and Budds Farm WTW. There is therefore potential for the creation of a new preferential pathway between the historical landfill at the WRP site and the underlying aquifers. Should a pathway be created, the quality of the underlying groundwater could be adversely affected. However, the primary and tertiary mitigation measures described in section 3.2 of this report (including casting piles in situ to reduce the risk associated with landfill leachate, employing continuous flight auger piles, undertaking proportional remediation works and the adoption of best practice construction measures included in the Outline CEMP, (Document reference 7.1, DCO Volume 7)), mean that groundwater quality would not be affected. The operational pipelines are not considered to result in any adverse impacts on groundwater quality, because they would be located at the southern boundary of the groundwater body. Due to the predominant southerly groundwater flow (as described in ES Appendix 19.3 Hydrogeological Impact Assessment, Volume II (Document reference 6.2, DCO Volume 6)) any highly localised changes in groundwater flow pathways would not affect the quality of the underlying aquifers. Furthermore, any mechanisms for impact during operational maintenance would be managed through the OEMP (Document reference 7.7, DCO Volume 7).

5.3.13 The Protected Areas listed in Table 5-5 are therefore scoped out of Stage 3: Impact Assessment (noting that impacts on NSN Protected Areas are not considered in this WER compliance assessment and instead are covered in the HRA (Habitats Regulations Assessment – Stage 2 Appropriate Assessment and Marine Conservation Zone – Stage 1 Assessment (Document reference 5.2, DCO Volume 5)).

Stage 2 summary

5.3.14 Stage 2 concludes that the potential effects associated with activities for this component during construction and operation would be managed via the primary and tertiary mitigation measures described in section 3.2.

5.3.15 This means that this component would not result in deterioration in the status of any water body quality elements or associated Protected Areas, and would not reduce the effectiveness of RBMP mitigation measures or prevent them being implemented in the future. As a result, the component would not prevent any improvements in water body status being achieved in the future.

5.3.16 This component is therefore scoped out of Stage 3: Impact Assessment and is considered to be compliant with the requirements of the WER.

6 Pipelines between the Water Recycling Plant site and Bedhampton Springs

6.1 Component description

6.1.1 The Pipelines would transfer recycled water from the WRP site to Bedhampton Springs, and source water from Bedhampton Springs back to the WRP site (before transfer to Otterbourne WSW).

6.1.2 The transfer between Bedhampton Springs and Havant Thicket Reservoir would utilise Portsmouth Water's pipelines between these sites which are subject to a separate planning consent. This means there would be no environmental effects from the transfer between Bedhampton Springs and Havant Thicket Reservoir. The Pipelines would enable the transfer at maximum operation of approximately 60Ml/d of recycled water from the WRP to Bedhampton Springs and approximately 90Ml/d of source water from Bedhampton Springs to the WRP site, for onward transfer to Otterbourne WSW.

6.1.3 The Proposed Development would also use pipelines that have been consented by Portsmouth Water (HBC planning application reference APP/20/00991 and APP/24/00405) between Bedhampton Springs and Havant Thicket Reservoir. These pipelines would transfer recycled water from Bedhampton Springs to Havant Thicket Reservoir, and transfer source water from Havant Thicket Reservoir back to Bedhampton Springs.

6.2 Stage 1: Screening

6.2.1 This section divides the component into activities (covering both construction and operation) and identifies the water bodies within which the activities would occur using the information included on water body extent in the Catchment Data Explorer [7].

Identification of activities

6.2.2 The component has been separated into activities in line with the requirements of the guidance and advice note produced by the EA [3] and Planning Inspectorate [2]. These activities are listed in Table 6-1.

Table 6-1 Summary of activities for the component 'Pipelines between the Water Recycling Plant site and Bedhampton Springs

Reference number	Activity	Description
Construction		
C1	Construction of Pipelines between the WRP site and Bedhampton Springs	The construction of the Pipelines between Bedhampton Springs and Havant Thicket Reservoir is subject to a separate planning consent (and associated environmental assessment) therefore its construction is not assessed in this WER compliance assessment.

Reference number	Activity	Description
Operation		
O1	Presence of Pipelines between the WRP site and Bedhampton Springs	Physical presence and operational use of the Pipelines.

Water body identification

6.2.3 ES Appendix 19.2 Figure 6 Pipelines between the Water Recycling Plant site and Bedhampton Springs against water body boundaries, Volume III, (Document reference 6.3, DCO Volume 6) and ES Appendix 19.2 Figure 2 Order Limits and groundwater body boundaries, Volume III, (Document reference 6.3, DCO Volume 6), show the component against surface and groundwater body boundaries. A screening exercise has been undertaken to identify which of the water bodies have the potential to be affected by the activities associated with this component, with water bodies being identified using the methods listed in section 2.2.

6.2.4 In addition to water body mapping, potential hydrological connectivity has been determined with reference to Main Rivers, Ordinary Watercourses and surface water flow routes that may not be shown on published mapping (identified using EA flood mapping). This screening process therefore considers the water bodies in whose catchments the activities are located, and where relevant, connected water bodies upstream and downstream. Full details of the baseline hydrogeology and surface water conditions of the site are provided in ES Chapter 19 Water environment, Volume I (Document reference 6.1, DCO Volume 6).

6.2.5 The results of the screening exercise are included in Table 6-2. This demonstrates that the component could potentially have an impact on the following water bodies:

1. Langstone Harbour (GB580705130000) and Langstone Oysterbeds (GB510070073000)
2. Hermitage Stream (GB107042016370)
3. East Hants Chalk (GB40701G502700)
4. South Hants Lambeth Group (GB40702G503700)

6.2.6 Annex A provides summary data for all water bodies relevant to this WER Compliance Assessment.

Table 6-2 Results of screening assessment for the Pipelines between the Water Recycling Plant site and Bedhampton Springs

Water body name and identification (ID) number	Type	Description	Screened in?	Justification
East Hants Chalk (GB40701G502700)	Groundwater	Poor Overall Status due to Quantitative Dependent Surface Water Body Status (Quantitative Status Element), Chemical Drinking Water Protected Area and General Chemical Test (Chemical Status Element). Trend assessment shows as upward trend. RNAG and affected quality element: • Groundwater abstraction (quantitative dependent surface water body status) • Poor nutrient management (general chemical test, chemical drinking water protected area, trend assessment) Objectives: • Good Overall Status by 2060 • Good Quantitative Status by 2027 • Good Chemical Status by 2060	Yes	The water body underlays the component.
South Hants Lambeth Group (GB40702G503700)	Groundwater	Good Overall Status.	Yes	The water body underlays this component.

Water body name and identification (ID) number	Type	Description	Screened in?	Justification
Langstone Harbour (GB580705130000)	Transitional	This water body is designated as a HMWB and is at Moderate Overall Status due to biological quality elements angiosperms and saltmarsh. Supporting elements assessment (surface water) and mitigation measures assessment are also Moderate. Chemical Status in 2019 was assessed as Fail due to mercury and its compounds and PBDE. In 2022 Chemical Status is listed as not requiring assessment. RNAG and quality element affected: • Physical modification (angiosperms, mitigation measures assessment) • Unknown (pending investigation) (mercury and Its compounds) • Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) Objectives: • Good Ecological Potential by 2027 • Good Chemical Status by 2063	Yes	The component is located within the coastal catchment of Langstone Harbour.

Water body name and identification (ID) number	Type	Description	Screened in?	Justification
Langstone Oysterbeds (GB510070073000)	Transitional	This waterbody is designated as a AWB and is at Good Ecological Potential although note supporting elements (surface water) are at Moderate. Chemical Status in 2019 was assessed as Fail due to mercury and its compounds and PBDE. In 2022 Chemical Status was listed as not requiring assessment. RNAG and quality element affected: • Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) Objectives: • Good Ecological Potential by 2015 • Good Chemical Status by 2063	Yes	Langstone Oysterbeds is hydrologically connected to Langstone Harbour.
Hermitage Stream (GB107042016370)	River	This water body is designated as a HMWB and is at Moderate Ecological Status although note that fish is classified as Poor. Elements at moderate status are invertebrates, phosphate, pH, supporting elements (surface water) and mitigation measures Assessment: Moderate or less Chemical Status in 2019 was assessed as Fail due to mercury and its compounds and PBDE. In 2022 Chemical Status is listed as not requiring assessment. RNAG and quality element affected: • Physical modification (fish, invertebrates, pH, mitigation measures assessment) • Point source pollution: (invertebrates, phosphate, pH) • Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) Objectives:	Yes	The component is located within this water body catchment.

Water body name and identification (ID) number	Type	Description	Screened in?	Justification
		• Good' Ecological Potential by 2027 • Good Chemical Status by 2063		

6.3 Stage 2: Scoping

Introduction

6.3.1 This section presents the results of the scoping stage undertaken on the water bodies identified in Table 6-2. Scoping examines the potential for the activities identified to impact water bodies and their quality elements, RBMP mitigation measures identified by the EA, and any associated Protected Areas. The results of the scoping stage determine which water bodies and quality elements require assessment as part of the Stage 3: Impact Assessment.

Impacts of activities on water body quality elements

Assessment of potential mechanisms for impact

6.3.2 The results of the scoping stage are summarised in Table 6-3.

6.3.3 Table 6-3 demonstrates that the component does not have the potential to directly or indirectly affect the quality elements of the water bodies scoped in for assessment.

Table 6-3 Activities with the potential to affect water body quality elements and status for the Pipelines between the Water Recycling Plant site and Bedhampton Springs

Activity	Water body	Quality element scoping results
Construction		
C1 construction of Pipelines between the WRP and Bedhampton Springs	East Hants Chalk (GB40701G502700)	**Quantity:** The area around Bedhampton and Havant is particularly sensitive to impacts due to the karstic Chalk in the region. East of Mill Lane the Pipelines would consist of a short section of above-ground pipelines within the boundary of the Bedhampton Springs site over a distance of approximately 200m. Above-ground pipelines are being used at this location due to the proximity to groundwater abstraction at Bedhampton Springs (the above-ground pipelines are within the SPZ1). The use of above-ground infrastructure would reduce the pathway for effect on one of the most sensitive receptors within the groundwater body. Any below-ground excavations are likely to encounter groundwater and require groundwater control measures. A range of measures have been included in the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects on groundwater receptors (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on the groundwater body. Furthermore, any abstraction for dewatering would be subject to an abstraction licence to control effects on groundwater (unless abstraction is less than $20m^3$ per day, which would mean that it is of low risk to the environment). As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to the water environment. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on groundwater quantity are therefore scoped out.
		Quality: The area around Bedhampton and Havant is particularly sensitive to impacts due to the karstic Chalk in the region. East of Mill Lane the Pipelines would consist of a short section of above-ground pipelines within the boundary of the Bedhampton Springs site over a distance of approximately 200m. Above-ground pipelines are being used at this location due to the proximity to groundwater abstraction at Bedhampton Springs (the above-ground pipelines are within the SPZ1). The use of above-ground infrastructure would reduce the pathway for effect on one of the most sensitive receptors within the groundwater body. Any below-ground excavations are likely to encounter groundwater and require groundwater control measures. A range of measures have been included in the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects on groundwater receptors

Activity	Water body	Quality element scoping results
		(as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on the groundwater body. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to the water environment. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on groundwater quality are therefore scoped out.
	South Hants Lambeth Group (GB40702G503700)	**Quantity:** Any trenchless excavations are likely to encounter groundwater and require groundwater control measures. A range of measures have been included in the Outline CEMP, (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects on groundwater receptors (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on the groundwater body. Furthermore, any abstraction for dewatering would be subject to an abstraction licence to control effects on groundwater (unless abstraction is less than $20m^3$ per day, which would mean that it is of low risk to the environment). As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to groundwater. There is therefore no mechanism for washouts to impact on this water body. Effects on groundwater quantity are therefore scoped out.
		Quality: Any trenchless excavations are likely to encounter groundwater and require groundwater control measures. A range of measures have been included in the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects on groundwater receptors (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on the groundwater body. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to groundwater. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on groundwater quality are therefore scoped out.
	Langstone Harbour (GB580705130000) and Langstone	**Hydromorphology:** The Pipelines between the WRP and Bedhampton Springs would consist of below-ground infrastructure between the WRP site and Mill Lane. The Pipelines crossing Bedhampton Stream would be constructed using a trenchless construction technique. A 200m-

Activity	Water body	Quality element scoping results
	Oysterbeds (GB510070073000)	long section of above-ground pipeline would be installed in the final section from the east of Mill Lane to Bedhampton Springs. There are therefore no pathways for effect on these water bodies. Where temporary structures may be required to provide access across water courses, a range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) and Construction Drainage Plan to avoid or reduce environmental effects (as summarised in section 3.2 of this report). This includes measures to manage the effects of temporary access structures on Ordinary Watercourses, such as using a structure with sufficient capacity to maintain flows and prevent impoundment, and installing the base of any culverts below the natural level of the bed to maintain downstream sediment transport. These measures are considered sufficient to avoid a pathway for effect on the hydromorphology of the water bodies. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: The Pipelines between the WRP site and Mill Lane. The Pipelines would cross Bedhampton Stream, a Main River that drains directly into Langstone Harbour. However, a trenchless construction technique would be used, and there would therefore be no direct disturbance of this watercourse. A 200m-long section of above-ground pipeline would be installed in the final section from the east of Mill Lane to Bedhampton Springs. This would cross a single Ordinary Watercourse, a tributary of Hermitage Stream using an above-ground crossing technique that would not directly disturb the watercourse. However, temporary structures may also be required to provide access across the watercourse during construction. This could result in direct impacts on water quality of the watercourse. However, a range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects (as summarised in section 3.2 of this report). This includes measures to manage the effects of temporary access structures on Ordinary Watercourses, such as using a structure with sufficient capacity to maintain flows and prevent impoundment. These measures would avoid the adverse impacts on water quality that can be associated with impoundments, including increased sedimentation, changes in temperature and changes in oxygen levels. These measures are considered sufficient to avoid a pathway for effect on the chemistry and physico-chemistry of the water body.

Activity	Water body	Quality element scoping results
		As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on chemistry and physico-chemistry are therefore scoped out.
		Biology: The Pipelines between the WRP site and Bedhampton Springs would consist of below-ground infrastructure between the WRP site and Mill Lane. The Pipelines would cross Bedhampton Stream, a Main River that drains directly into Langstone Harbour. However, a trenchless construction technique would be used, and there would therefore be no direct disturbance of this watercourse and no mechanism for impact on biological quality elements. A 200m-long section of above-ground pipeline would be installed in the final section from the east of Mill Lane to Bedhampton Springs. This would cross a single Ordinary Watercourse, a tributary of Hermitage Stream, using an above-ground crossing technique that would not directly disturb the watercourse or affect biological quality elements. However, temporary structures may also be required to provide access across the watercourse during construction. This could result in direct impacts on the biology of the watercourse. However, a range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) and Construction Drainage Plan to avoid or reduce environmental effects (as summarised in section 3.2 of this report). This includes measures to manage the effects of temporary access structures on Ordinary Watercourses, preventing changes to hydromorphology and physico-chemistry and ensuring that there would be a negligible impact on biology. These measures are considered sufficient to avoid a pathway for effect on the biology of the water body. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on biology are therefore scoped out.
	Hermitage Stream (GB107042016370)	**Hydromorphology:** There is only a small overlap of this option with this catchment with activities limited to the area within 50m of the downstream limit of the water body. There would be no direct disturbance of the water body, and therefore only indirect effects are possible (e.g. resulting from changes to runoff and the supply of fine sediments). However, a range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce

Activity	Water body	Quality element scoping results
		environmental effects (as summarised in section 3.2 of this report). These measures are considered sufficient to avoid a pathway for effect on the hydromorphology of the water body. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects (as summarised in section 3.2 of this report). These measures are considered sufficient to avoid a pathway for effect on the chemistry and physico-chemistry of the water body. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on chemistry and physico-chemistry are therefore scoped out.
		Biology: There is only a small overlap of this option with this catchment, with activities limited to the area within 50m of the downstream limit of the water body. There would be no direct disturbance of the water body, and therefore only indirect effects on biology are possible (e.g. resulting from changes to runoff and the supply of fine sediments). However, a range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects (as summarised in section 3.2 of this report). These measures are considered sufficient to avoid a pathway for effect on the biology of the water body. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on biology are therefore scoped out.
Operation		
O1 presence of Pipelines		**Quantity:** Once operational, the presence of the Pipelines is not considered to result in any adverse impacts on groundwater flow patterns. The dimensions of the infrastructure mean that

Activity	Water body	Quality element scoping results
between the WRP site and Bedhampton Springs	East Hants Chalk (GB40701G502700)	any changes to groundwater flows would be negligible. Furthermore, the operational pipeline corridor would include measures such as clay stanks to prevent the infrastructure becoming a preferential pathway for subsurface flows (ES Chapter 3 Project description, Volume I (Document reference 6.1, DCO Volume 6)). These measures are considered sufficient to avoid a pathway for effect on the water body. Furthermore, the operational use of the Pipelines between the WRP site and Bedhampton Springs and Portsmouth Water's pipeline between Bedhampton Springs and Havant Thicket Reservoir would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on this water body from the operational use of the Pipelines. Effects on groundwater quantity are therefore scoped out.
		Quality: Ground disturbance during the maintenance of buried infrastructure could potentially result in localised increases in the supply of fine sediment, fuel and lubricants to underlying groundwaters. However, these activities would be subject to best practice measures as set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report). These measures are considered sufficient to avoid a pathway for effect on the quality of the water body. Furthermore, the operational use of the Pipelines between the WRP site and Bedhampton Springs and Portsmouth Water's pipeline between Bedhampton Springs and Havant Thicket Reservoir would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on this water body from the operational use of the Pipelines. Effects on groundwater quality are therefore scoped out.
	South Hants Lambeth Group (GB40702G503700)	**Quantity:** Once operational, the Pipelines are not considered to result in any adverse impacts on groundwater flow patterns. The dimensions of the infrastructure mean that any changes to groundwater flows would be negligible. Furthermore, the operational pipeline corridor would include measures such as clay stanks to prevent the infrastructure becoming a preferential pathway for subsurface flows (ES Chapter 3 Project description, Volume I (Document reference 6.1, DCO Volume 6)). These measures are considered sufficient to avoid a pathway for effect on the water body.

Activity	Water body	Quality element scoping results
		Furthermore, the operational use of the Pipelines between the WRP site and Bedhampton Springs and Portsmouth Water's pipeline between Bedhampton Springs and Havant Thicket Reservoir would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on this water body from the operational use of the Pipelines. Effects on groundwater quantity are therefore scoped out.
		Quality: Ground disturbance during the maintenance of buried infrastructure could potentially result in localised increases in the supply of fine sediment, fuel and lubricants to underlying groundwaters. However, these activities would be subject to best practice measures as set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report). These measures are considered sufficient to avoid a pathway for effect on the water body. Furthermore, the operational use of the Pipelines between the WRP site and Bedhampton Springs and Portsmouth Water's pipeline between Bedhampton Springs and Havant Thicket Reservoir would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on this water body from the operational use of the Pipelines. Effects on groundwater quality are therefore scoped out.
	Langstone Harbour (GB580705130000) and Langstone Oysterbeds (GB510070073000)	**Hydromorphology:** Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment to the surface drainage network. However, these activities would be subject to best practice measures as set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report). These measures are considered sufficient to avoid a pathway for effect on the hydromorphology of the water body. Furthermore, the operational use of the Pipelines between the WRP site and Bedhampton Springs and Portsmouth Water's pipeline between Bedhampton Springs and Havant Thicket Reservoir would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on this water body from the operational use of the Pipelines. Effects on hydromorphology are therefore scoped out.

Activity	Water body	Quality element scoping results
		Chemistry and physico-chemistry: Ground disturbance and the use of construction materials and plant during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment, fuel and lubricants into the surface drainage network. However, these activities would be subject to best practice measures as set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report). These measures are considered sufficient to avoid a pathway for effect on the chemistry and physico-chemistry of the water body. Furthermore, the operational use of the Pipelines between the WRP site and Bedhampton Springs and Portsmouth Water's pipeline between Bedhampton Springs and Havant Thicket Reservoir would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on this water body from the operational use of the Pipelines. Effects on chemistry and physico-chemistry are therefore scoped out.
		Biology: Ground disturbance and the use of construction materials and plant during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment, fuel and lubricants into the surface drainage network, which could adversely affect biological quality elements. However, these activities would be subject to best practice measures as set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report). These measures are considered sufficient to avoid a pathway for effect on the biology of the water body. Furthermore, the operational use of the Pipelines between the WRP site and Bedhampton Springs and Portsmouth Water's pipeline between Bedhampton Springs and Havant Thicket Reservoir would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on this water body from the operational use of the Pipelines. Effects on biology are therefore scoped out.
	Hermitage Stream (GB107042016370)	**Hydromorphology:** Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment to the surface drainage network. However, these activities would be subject to best practice measures as set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2

Activity	Water body	Quality element scoping results
		of this report). These measures are considered sufficient to avoid a pathway for effect on the hydromorphology of the water body. Furthermore, the operational use of the Pipelines between the WRP site and Bedhampton Springs and Portsmouth Water's pipeline between Bedhampton Springs and Havant Thicket Reservoir would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on this water body from the operational use of the Pipelines. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: Ground disturbance and the use of construction materials and plant during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment, fuel and lubricants into the surface drainage network. However, these activities would be subject to best practice measures as set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report). These measures are considered sufficient to avoid a pathway for effect on the chemistry and physico-chemistry of the water body. Furthermore, the operational use of the Pipelines between the WRP site and Bedhampton Springs and Portsmouth Water's pipeline between Bedhampton Springs and Havant Thicket Reservoir would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on this water body from the operational use of the Pipelines. Effects on chemistry and physico-chemistry are therefore scoped out.
		Biology: Ground disturbance and the use of construction materials and plant during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment, fuel and lubricants into the surface drainage network, which could adversely affect biological quality elements. However, these activities would be subject to best practice measures as set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report). These measures are considered sufficient to avoid a pathway for effect on the biology of the water body. Furthermore, the operational use of the Pipelines between the WRP site and Bedhampton Springs and Portsmouth Water's pipeline between Bedhampton Springs and Havant Thicket Reservoir would not result in any releases of water into the environment (e.g. through operational

Activity	Water body	Quality element scoping results
		testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on this water body from the operational use of the Pipelines. Effects on biology are therefore scoped out.

Impacts of Proposed Development activities on River Basin Management Plan improvement and mitigation measures

River Basin Management Plan measures applicable to each water body

6.3.4 The South East RBMP [8] does not identify any RBMP mitigation for the Langstone Oysterbeds (GB510070073000) water body. Therefore, this water body is not considered further in this part of the assessment.

6.3.5 There are however RBMP mitigation measures associated with the Hermitage Stream (GB107042016370) and Langstone Harbour (GB580705130000) water bodies [8]. These are listed in Table 6-4.

6.3.6 In addition, Portsmouth Water has agreed to implement a package of river channel improvement measures in the Hermitage Stream catchment to mitigate the impacts of constructing Havant Thicket Reservoir [9]. This package, which has been agreed with the EA as part of the Regulation 19 derogation process, includes a range of geomorphological and habitat improvements in Hermitage Stream, and its tributaries Riders Lane Stream and Park Lane Stream. The combined length of these improvements would be approximately 5.48km. These measures will be designed to deliver considerable improvements to the geomorphology of the watercourse and to the quality of habitats for fish, aquatic invertebrates and macrophyte communities. Although these measures are considered to be consistent with the measures already identified in the RBMP, they are also considered separately in Table 6-4.

Table 6-4 Potential Impacts of the Pipelines between the Water Recycling Plant site and Bedhampton Springs on River Basin Management Plan mitigation measures

Mitigation measure	Status	Potential impact
Langstone Harbour (GB580705130000)		
Managed realignment of flood defence assets	Not in place	There are no works proposed to flood defences as a result of the component (either option) therefore the activities would not impact on this measure in the future.
Activity to create new habitat where it did not exist before	Not in place	There are no direct works within the water body therefore the activities would not prevent these measures being implemented in the future.
Removal/softening of hard engineering structures that modify natural bank profile	Not in place	
Retro-fitting existing structures to accommodate niche habitats, as opposed to more substantial structural modifications that would be likely to deliver greater hydromorphological change but may not be possible given the use	Not in place	
Leaving habitat or parts of natural habitat while undertaking operations or maintenance in a water body	Not in place	

Mitigation measure	Status	Potential impact
Hermitage Stream (GB107042016370)		
Activity to create new habitat where it did not exist before	Not in place	The proposed activities would not directly interact with the freshwater reaches of Hermitage Stream, and therefore the activities would not prevent these measures being implemented in the future.
Bed of culvert altered to allow decreased flow conditions and to allow longitudinal connectivity of both biota and sediments	Not in place	
Implement a downstream flow regime that does not impact the ecology (applies to rivers and reservoirs)	Not in place	
Implement a downstream flow regime that does not impact the ecology (applies to rivers and reservoirs)	Not in place	
Installation of structures designed to facilitate and improve the passage of migratory (e.g. salmon and sea trout) and non-migratory fish where structures cannot be removed	Not in place	
Leaving habitat or parts of natural habitat while undertaking operations or maintenance in a water body	Not in place	
Raise public awareness of the impacts and responsibilities of landowners	Not in place	
Rehabilitation of degraded bankside habitats to improve their physical structure and the condition of the riparian zone. Bank rehabilitation includes bank reprofiling, the creation of aquatic ledges and removal of hard bank protection.	Not in place	
Removal of hard engineering structures that modify the natural flow and sediment regime, including weirs, locks, floodgates, sluices, and erosion control structures	Not in place	
Removal or re-location of set-back embankments	Not in place	
Removal/softening of hard engineering structures that modify natural bank profile	Not in place	
Re-opening of covered culverts	In place	
Restoration of lateral connectivity with the water bodies surrounding floodplain e.g. flood plain spillways	Not in place	
Restore or increase in-channel morphological diversity e.g. riffle and pool creation and bar creation.	Not in place	

Mitigation measure	Status	Potential impact
Retro-fitting existing structures to accommodate niche habitats, as opposed to more substantial structural modifications that would be likely to deliver greater hydromorphological change but may not be possible given the use	Not in place	
Structural changes to locks, sluices, weirs, beach control	Not in place	
Regulation 19 measures to deliver geomorphological and habitat improvements in Hermitage Stream, Riders Lane Stream and Park Lane Stream and fish passage easement measures on Hermitage Stream (to be implemented by Portsmouth Water)	Not in place (although likely to be in place when Havant Thicket Reservoir is operational)	The proposed activities would not directly interact with freshwater reaches of Hermitage Stream, and therefore the activities would not prevent these measures being implemented in the future.

Assessment of potential mechanisms for impact

6.3.7 Table 6-4 also presents an assessment of potential impacts of the activities associated with the component on RBMP mitigation measures. This demonstrates that the proposed activities would not counteract or adversely affect the delivery of the RBMP mitigation measures that are already in place and would not prevent the future implementation of the RBMP mitigation measures that are not yet in place (including those measures proposed by Portsmouth Water to mitigate for the construction and operation of Havant Thicket Reservoir in the Hermitage Stream catchment). RBMP mitigation measures (either in place or not in place) do not, therefore, require assessment in Stage 3: Impact Assessment.

Impacts of the activities on Protected Areas

Protected Areas

6.3.8 The Clearing the Waters for All guidance [3] recommends further assessment of a new project on Protected Areas that are within 2km. Protected Areas within 2km are listed in Table 6-5 and shown in ES Appendix 19.2 Figure 7 Pipelines between the Water Recycling Plant site and Bedhampton Springs against Protected Areas within a 2km buffer, Volume III, (Document reference 6.3, DCO Volume 6).

Table 6-5 Protected Areas within 2km

Protected Areas within 2km Pipelines between the Water Recycling Plant site and Bedhampton Springs
Chichester, Langstone and Portsmouth Harbours Eutrophic NVZ
Chichester and Langstone Harbours SPA/Ramsar
Solent Maritime SAC
Langstone Harbour Shellfish Water
Chichester Harbour (Emsworth Channel) Shellfish Water

Protected Areas within 2km Pipelines between the Water Recycling Plant site and Bedhampton Springs
Langstone Harbour UWTDPA
East Hants Chalk DrWPA

Assessment of potential mechanisms for impact

6.3.9 Several NSN sites (Solent Maritime SAC and Chichester and Langstone Harbours SPA/Ramsar) are located within 2km. WER compliance assessments require the consideration of the potential effects on quality elements (hydromorphological, physico-chemical, chemical and biological), many of which support ecological interest features for which the NSN Protected Areas are designated. The HRA (Habitats Regulations Assessment – Stage 2 Appropriate Assessment and Marine Conservation Zone – Stage 1 Assessment (Document reference 5.2, DCO Volume 5)) therefore builds on the output of WER compliance assessments to assess the potential effects on designated site interest features. To avoid duplication with the HRA, impacts on the designated site interest features themselves are not considered in this WER compliance assessment and instead are covered in the HRA (Habitats Regulations Assessment – Stage 2 Appropriate Assessment and Marine Conservation Zone – Stage 1 Assessment (Document reference 5.2, DCO Volume 5)).

6.3.10 The following Protected Areas, not related to NSN sites, are located within 2km:

1. Chichester, Langstone and Portsmouth Harbours Eutrophic NVZ
2. Langstone Harbour Shellfish Waters
3. Chichester Harbour (Emsworth Channel) Shellfish Waters
4. Langstone Harbour UWTDPA
5. East Hants Chalk DrWPA

6.3.11 The Chichester, Langstone and Portsmouth Harbours Eutrophic NVZ Langstone Harbour UWTDPA are designated to ensure that inputs of nutrients, chemicals and wastewater-related pathogens are controlled. Wastewater generated in construction compounds, for example via welfare facilities, could potentially release nitrates and other substances if released untreated to the water environment. However, all wastewater generated during construction and operation would be contained and adequately treated (alongside the securing of permits if required) to ensure that the Proposed Development activities would not result in direct nutrient inputs (see section 3.2). Note that any changes in nutrient loading are assessed in detail in ES Appendix 19.7 Nutrient Assessment, Volume II, (Document reference 6.2, DCO Volume 6).

6.3.12 The Langstone Harbour and Chichester Harbour (Emsworth Channel) Shellfish Waters are designated to protect water quality in areas that support economically significant aquatic species. As described in Table 6-3, the Pipelines would be constructed using a combination of trenched open-cut, trenchless and above-ground construction methods. A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects during construction (as summarised in section 3.2 of this report). Adverse impacts on the Shellfish Waters would not therefore occur during construction. There is no pathway for effect associated with the presence of the

new infrastructure on the surface water bodies; any mechanisms for impact during operational maintenance would be managed through the OEMP (Document reference 7.7, DCO Volume 7).

6.3.13 The East Hants Chalk DrWPA is intended to protect the quality of drinking water from the chalk aquifer. As described in Table 6-3, the trenchless construction of the Pipelines would require subsurface excavation that could affect the underlying aquifer. However, the primary and tertiary mitigation measures described in section 3.2 of this report (including the adoption of best practice construction measures set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), mean that groundwater quality would not be affected. The operational pipelines are not considered to result in any adverse impacts on groundwater quality.

6.3.14 The Protected Areas listed in Table 6-5 are therefore scoped out of Stage 3: Impact Assessment (noting that impacts on NSN Protected Areas are not considered in this WER compliance assessment and instead are covered in the HRA (Habitats Regulations Assessment – Stage 2 Appropriate Assessment and Marine Conservation Zone – Stage 1 Assessment (Document reference 5.2, DCO Volume 5)).

Stage 2 summary

6.3.15 Stage 2 concludes that the potential effects associated with activities for this component during construction and operation would be managed via the primary and tertiary mitigation measures described in section 3.2.

6.3.16 This means that this component would not result in deterioration in the status of any water body quality elements or associated Protected Areas, and would not reduce the effectiveness of RBMP mitigation measures or prevent them being implemented in the future. As a result, the component would not prevent any improvements in water body status being achieved in the future.

6.3.17 This component is therefore scoped out of Stage 3: Impact Assessment and is considered to be compliant with the requirements of the WER.

7 Pipeline between the Water Recycling Plant site and Otterbourne Water Supply Works

7.1 Component description

7.1.1 An underground pipeline approximately 35km long would transfer approximately 90Ml/d of source water at the peak of a drought, from the WRP site to Otterbourne WSW. During minimum flow operation outside of drought conditions, the Pipeline between the WRP site and Otterbourne WSW would transfer a minimum of 20Ml/d, and an approximate normal flow of 30Ml/d of source water from Havant Thicket Reservoir to Otterbourne WSW. AGP would support the transfer of water from the WRP site to Otterbourne WSW.

7.2 Stage 1: Screening

7.2.1 This section divides the component into activities (covering both construction and operational phases) and identifies the water bodies within which the activities would occur using the information included on water body extent in the Catchment Data Explorer [7].

Identification of activities

7.2.2 The component has been separated into activities in line with the requirements of the guidance produced by the EA [3] and Planning Inspectorate [2]. These activities are listed in Table 7-1. Due to the length of the Pipeline, it has been divided into sections (Sections D to M). Section C of the Pipeline has not been included as this comprises the Pipelines between Budds Farm WTW and the WRP site which have already been assessed in section 5. Sections A and B of the Pipeline have also not been included as these comprise the Pipelines between the WRP site and Bedhampton Springs, as described in section 6. There is also no Section I of the Pipeline to avoid confusion with the number one.

Table 7-1 Summary of activities for the component 'Pipeline between the Water Recycling Plant site and Otterbourne Water Supply Works'

Reference number	Activity	Description
Construction		
C1	Construction of Section D: The Water Recycling Plant site to Portsdown Hill	Section D would be constructed as a tunnel and would pass underneath Drayton and follow part of the alignment of Portsdown Hill Road (B2177). An access cover would be retained at the location of the tunnel shaft at the ridge of Portsdown Hill to provide access for maintenance and repair during the operational phase. This would be located in agricultural land to the north of Portsdown Hill Road (B2177) within land covered by construction compound E-1. An intermediate tunnel shaft would be located south of Portsdown Hill Road (B2177) and west of Gillman Road. No permanent above-ground infrastructure would be required for the intermediate tunnel shaft as the shaft would be backfilled,

Reference number	Activity	Description
		capped and reinstated to its existing condition following the completion of construction works.
C2	Construction of Section E: Portsdown Hill to Boarhunt	Primarily located within agricultural land and intersects a number of roads. BPT/IPS-E is located at the eastern end. Would be primarily constructed using trenched open-cut construction. Includes reception tunnel shaft for Section D. Two construction compounds would be required. Surface water drainage at the BPT/IPS-E site would be in line with the Design Principles Document (Document reference 5.11, DCO Volume 5) and Outline Landscape and Ecology Management Plan (LEMP) (Document reference 7.5, DCO Volume 7).
C3	Construction of Section F: Boarhunt to Crockerhill	Section F intersects the River Wallington. The remainder of Section F is located within agricultural land. The intersection with the river would be constructed using trenchless construction. Construction compound F-1 and construction compound F-2 would be used to undertake the trenchless construction. The remaining parts of Section F would be constructed using trenched open-cut construction. A further construction compound F-3 would be located to the east of Albany Farm. IPS-F is located east of Albany Farm and surface water drainage would be delivered in line with the Design Principles Document (Document reference 5.11, DCO Volume 5) and Outline LEMP (Document reference 7.5, DCO Volume 7).
C4	Construction of Section G: Crockerhill to Wickham	Section G intersects with the River Meon, Hoad's Hill (A32) and Winchester Road (A334). The remaining parts would be located within agricultural land. The intersection with the River Meon would be constructed using trenchless construction between construction compound G-3 and construction compound G-4 or construction compound G-5. There are two options for the trenchless construction to support the flexibility for routeing of the Pipeline at Wickham Park Golf Club which is north of the River Meon. Two road crossings would be constructed using trenchless crossings with the remaining parts constructed using trenched open-cut construction. Seven construction compounds required in total. G-7 would have a water storage lagoon. IPS-G is located to the east of Titchfield Lane within Section G and surface water drainage would be delivered in line with the Design Principles Document (Document reference 5.11, DCO Volume 5) and Outline LEMP (Document reference 7.5, DCO Volume 7).
C5	Construction of Section H: Wickham to Shedfield	Section H intersects with High Street and Winchester Road (B2177). The remaining parts of Section H would mostly be located within agricultural land. Two roads would be crossed using trenchless construction with the remainder using trenched open-cut construction. Five construction compounds would be required. Small storage structures on the pipeline route near Shirrell Heath would also need to be demolished.

Reference number	Activity	Description
C6	Construction of Section J: Shedfield to the River Hamble	Section J intersects a number of roads. The remaining parts of Section J would be located within agricultural land. Two roads would be crossed using trenchless construction techniques and the remaining parts of Section J would be constructed using trenched open-cut construction. Three construction compounds would be required. Small storage structures on the pipeline route near Waltham Chase would also need to be demolished.
C7	Construction of Section K: The River Hamble to Lower Upham	Section K intersects with the River Hamble and a number of roads and parkland. The remaining parts of Section K would be located within agricultural land. The crossing of the River Hamble would be constructed in-combination with the trenchless construction that would be used at the intersection with Botley Road in Section J. The intersection with Winters Hill would be constructed using trenchless construction techniques and the remaining parts of Section K would be constructed using trenched open-cut construction. Six construction compounds would be required. BPT-K is located north of Wintershill Hall. Surface water drainage would be delivered in line with the Design Principles Document (Document reference 5.11, DCO Volume 5) and Outline LEMP (Document reference 7.5, DCO Volume 7).
C8	Construction of Section L: Lower Upham to Brambridge	Section L intersects with Winchester Road (B3354), Bow Lake and an upstream tributary of the River Itchen. The crossing of a watercourse and woodland at Store House Gully would be constructed using trenchless construction. The crossing of Winchester Road (B3354) would be constructed using trenchless construction and the crossing of Bow Lake would be constructed using trenchless construction. The crossing with an upstream tributary of the River Itchen would be constructed using trenchless construction. The remaining parts of Section L would be constructed using trenched open-cut construction. Ten construction compounds would be required, two with water storage lagoons. Small storage structures on the pipeline route near Crowdhill and Highbridge would also need to be demolished.
C9	Construction of Section M: Brambridge to Otterbourne Water Supply Works	Section M intersects the River Itchen and several roads. Section M intersects with the River Itchen and an upstream tributary of the River Itchen. The crossing of the River Itchen and upstream tributary would be constructed using trenchless construction. The crossing of the River Itchen would be undertaken in the lower permeability bedrock (non-aquifer) that confines the chalk below. The trenchless crossing of the upstream tributary of the River Itchen is likely to encounter the chalk for part of the crossing. The remaining parts of Section M would be constructed using trenched open-cut construction. A new access road and/or upgrades to the existing access road may be required at

Reference number	Activity	Description
		Otterbourne WSW. Three construction compounds would be required. INNS management measures at Otterbourne WSW will require limited construction within the boundaries of the existing site.
Operation		
O1	Presence of Section D: The Water Recycling Plant site to Portsdown Hill	Includes the physical presence and operational use of the Pipeline
O2	Presence of Section E: Portsdown Hill to Boarhunt	Includes the physical presence and operational use of the Pipeline and BPT/IPS-E
O3	Presence of Section F: Boarhunt to Crockerhill	Includes the physical presence and operational use of the Pipeline and IPS-F
O4	Presence of Section G: Crockerhill to Wickham	Includes the physical presence and operational use of the Pipeline and IPS-G
O5	Presence of Section H: Wickham to Shedfield	Includes the physical presence and operational use of the Pipeline
O6	Presence of Section J: Shedfield to the River Hamble	Includes the physical presence and operational use of the Pipeline
O7	Presence of Section K: The River Hamble to Lower Upham	Includes the physical presence and operational use of the Pipeline and BPT-K
O8	Presence of Section L: Lower Upham to Brambridge	Includes the physical presence and operational use of the Pipeline
O9	Presence of Section M: Brambridge to	Includes the physical presence and operational use of the Pipeline

Reference number	Activity	Description
	Otterbourne Water Supply Works	

Water body identification

7.2.3 ES Appendix 19.2 Figure 8 Pipeline between the Water Recycling Plant site and Otterbourne Water Supply Works against water body boundaries, Volume III, (Document reference 6.3, DCO Volume 6) and ES Appendix 19.2 Figure 2 Order Limits and groundwater body boundaries, Volume III, (Document reference 6.3, DCO Volume 6), show the component and water bodies. A screening exercise has been undertaken to identify which of the water bodies have the potential to be impacted by the activities associated with this component.

7.2.4 In addition to water body mapping, potential hydrological connectivity has been determined with reference to Main Rivers, Ordinary Watercourses and surface water flow routes that may not be shown on published mapping (identified using EA flood mapping). This process therefore considers the water bodies in whose catchments the proposed activities are located, and where relevant, connected water bodies upstream and downstream. Full details of the geology, hydrogeology and surface water details of the site are provided in ES Chapter 19 Water environment, Volume I (Document reference 6.1, DCO Volume 6).

7.2.5 Each section of the Pipeline is listed with relevant water bodies in Table 7-2.

Table 7-2 Summary of Pipeline between the Water Recycling Plant site and Otterbourne Water Supply Works and water bodies

Section	Water bodies		
	Groundwater bodies	River water bodies	Transitional and coastal
D	East Hants Chalk (GB40701G502700) South Hants Lambeth Group (GB40702G503700)	Potwell Trib (GB107042016400)	Coastal catchment associated with Langstone Harbour (GB580705130000) and Langstone Oysterbeds (GB510070073000)
E	East Hants Chalk (GB40701G502700) South Hants Lambeth Group (GB40702G503700)	Potwell Trib (GB107042016400) Wallington below Southwick (GB107042016360)	-
F	East Hants Chalk (GB40701G502700) South Hants Lambeth Group (GB40702G503700)	Wallington below Southwick (GB107042016360)	-
G	South East Hants Bracklesham Group (GB40702G503000)	Meon (GB107042016640)	-

Section	Water bodies		
	Groundwater bodies	River water bodies	Transitional and coastal
H	South East Hants Bracklesham Group (GB40702G503000)	Meon (GB107042016640)	Coastal catchment associated with Southampton Water (GB520704202800)
J	South East Hants Bracklesham Group (GB40702G503000)	Main River Hamble (GB107042016250) Moors Stream (GB107042016260)	Coastal catchment associated with Southampton Water (GB520704202800)
K	-	Main River Hamble (GB107042016250) Upper Hamble (GB107042016280) Horton Heath Stream (GB107042016270)	-
L	East Hants Lambeth Group (GB40702G500800)	Horton Heath Stream (GB107042016270) Bow Lake (GB107042016650) Itchen (GB107042022580)	-
M	Central Hants Lambeth Group (GB40702G503800) River Itchen Chalk (GB40701G505000)	Itchen (GB107042022580) Itchen Navigation (GB70710008)	-

7.2.6 The results of the screening exercise are presented in Table 7-3.

Table 7-3 Results of screening assessment for the Pipeline between the Water Recycling Plant site and Otterbourne Water Supply Works

Water body name and ID number	Type	Description	Screened in?	Justification
East Hants Chalk (GB40701G502700)	Groundwater	Poor Overall Status due to Quantitative Dependent Surface Water Body Status (Quantitative Status Element), Chemical Drinking Water Protected Area and General Chemical Test (Chemical Status Element). Trend assessment shows as upward trend. RNAG and affected quality element: • Groundwater abstraction (quantitative dependent surface water body status) • Poor nutrient management (general chemical test, chemical drinking water protected area, trend assessment) Objectives: • Good Overall Status by 2060 • Good Quantitative Status by 2027 • Good Chemical Status by 2060	Yes	The water body underlays Section D, Section E and Section F.
South East Hants Bracklesham Group (GB40702G503000)	Groundwater	Poor Overall Status due to Chemical Status Element, Chemical Dependant Surface Water Body Status. Trend Assessment shows as no trend. RNAG and affected quality element: • Point source pollution (landfill leaching): Chemical Dependent Surface Water Body Status Objectives: • Good Overall Status by 2027	Yes	The water body underlays Section G, Section H and Section J.

Water body name and ID number	Type	Description	Screened in?	Justification
		• Good Quantitative Status by 2015 • Good Chemical Status by 2027		
East Hants Lambeth Group (GB40702G500800)	Groundwater	Good Overall Status	Yes (Section M only)	Whilst Section L overlaps this water body, it is only a very small area likely to be associated with construction access only. Effects are therefore very unlikely over a water body scale. The water body underlays Section M.
South Hants Lambeth Group (GB40702G503700)	Groundwater	Good Overall Status.	Yes	The water body underlays Section D, Section E and Section F.
Central Hants Lambeth Group (GB40702G503800)	Groundwater	Good Overall Status	Yes	The water body underlays Section M.
River Itchen Chalk (GB40701G505000)	Groundwater	Poor Overall Status due to Quantitative Dependant Surface water body status and Chemical Status Element – Chemical Drinking Water Protected Area, general chemical test. Trend assessment shows as upward trend. RNAG and affected quality element: • Groundwater abstraction: Quantitative dependent surface water body status • Diffuse pollution: Chemical drinking water protected area, general chemical test, trend assessment Objectives: • Good Overall Status by 2060 • Good Quantitative Status by 2027	Yes	The water body underlays Section M.

Water body name and ID number	Type	Description	Screened in?	Justification
		• Good Chemical Status by 2060		
Potwell Trib (GB107042016400)	River	Designated as a HMWB and is at Moderate Ecological Potential due to fish, macrophytes and phytobenthos (combined), phosphate, supporting elements (surface water) mitigation measures assessment. Chemical Status in 2019 is Fail due to Benzo(g-h-i)perylene, mercury and its compounds, Perfluorooctane sulphonate (PFOS) and PBDE. In 2022 Chemical Status was listed as not requiring assessment. RNAG and quality element affected: • Point source pollution: Macrophytes and phytobenthos combined, phosphate • Diffuse pollution: Phosphate • Physical modification (fish, mitigation measures assessment) • Unknown (pending investigation): Benzo(g-h-i)perylene, PFOS • Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) • Monitoring site changed: Phosphate Objectives: • Good Ecological Potential by 2027 • Good Chemical Status by 2063	Yes	Section D and Section E are located within this water body catchment.
Wallington below Southwick (GB107042016360)	River	At Moderate Ecological Status due to dissolved oxygen, morphology and hydrological regime. Chemical Status in 2019 was Fail for mercury at its compounds, PFOS and PBDE. In 2022	Yes	Section E and Section F are located within this water body catchment.

Water body name and ID number	Type	Description	Screened in?	Justification
		Chemical Status was listed as not requiring assessment. RNAG and quality element affected: • Flow: Hydrological regime • Point source pollution: Phosphate • Diffuse pollution: Phosphate • Unknown (pending investigation): PFOS • Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) • Monitoring site changed: Dissolved oxygen Objectives: • Good Ecological Status by 2027 • Good Chemical Status by 2063		
Meon (GB107042016640)	River	At Moderate Ecological Status due to fish and hydrological regime. In 2019 Chemical Status was Fail due to mercury and its compounds and PBDE. In 2022 Chemical Status listed as not requiring assessment. RNAG and quality element affected: • Flow: Hydrological regime • Unknown (pending investigation): Fish • Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) • At Risk of Deterioration: Phosphate (no sector responsible)	Yes	Section G and Section H are located within this water body catchment.

Water body name and ID number	Type	Description	Screened in?	Justification
		Objectives: • Good Ecological Status by 2021 • Good Chemical Status by 2063		
Main River Hamble (GB107042016250)	River	At Moderate Ecological Status due to fish and phosphate. In 2019 Chemical Status was Fail due to mercury and its compounds and PBDE. In 2022 Chemical Status is listed as not requiring assessment. RNAG and quality element affected: • Point source pollution: Phosphate • Diffuse pollution: Phosphate • High to Good deterioration, no action required: Dissolved oxygen • Physical modification: Fish • Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) Objectives: • Good Ecological Status by 2027 • Good Chemical Status by 2063	Yes	Section J and Section K are located within this water body catchment.
Upper Hamble (GB107042016280)	River	At Moderate Ecological Status due to fish and phosphate. Note that dissolved oxygen is assessed as Poor. In 2019 Chemical Status was Fail due to mercury and its compounds and PBDE. In 2022 Chemical Status is listed as does not require assessment. RNAG and quality element affected: • Flow: Invertebrates, dissolved oxygen	Yes	Section J and Section K are located within this water body catchment.

Water body name and ID number	Type	Description	Screened in?	Justification
		• Natural: Invertebrates, dissolved oxygen • Diffuse pollution: Invertebrates, phosphate • Point source pollution: Phosphate • Physical modification: Fish • Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) Objectives: • Good Ecological Status by 2027 • Good Chemical Status by 2063		
Horton Heath Stream (GB107042016270)	River	This water body is designated as a HMWB and is at Good Ecological Status although note fish is classified as being at Moderate status. In 2019 Chemical Status is listed as at Fail due to mercury and its compounds and PBDE. In 2022 Chemical Status is listed as not requiring assessment. RNAG and quality element affected: • Suspect data: Fish • Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) Objectives: • Good Ecological Status by 2015 • Good Chemical Status by 2063	Yes	Section K and Section L are located within this water body catchment.
Bow Lake (GB107042016650)	River	At 'Bad' Ecological Status for fish. Invertebrates and hydrological regime are also at Moderate. In 2019 Chemical Status is listed as Fail due to	Yes	Section L is located within this water body catchment.

Water body name and ID number	Type	Description	Screened in?	Justification
		Benzo(g-h-i)perylene, mercury and its compounds, PFOS and PBDE. In 2022 Chemical Status is listed as not requiring assessment. RNAG and quality element affected: • Diffuse pollution: Ammonia, dissolved oxygen, fish, invertebrates • Point source: Ammonia, dissolved oxygen • Suspect data: Hydrological regime • Unknown (pending investigation): Benzo(g-h-i)perylene, PFOS • Physical modification: Dissolved oxygen, fish, invertebrates • Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) Objectives: • Good Ecological Status by 2027 • Good Chemical Status by 2063		
Moors Stream (GB107042016260)	River	At Good Ecological Status although note hydrological regime does not support Good. In 2019 Chemical Status listed as Fail due to mercury and its compounds and PBDE. In 2022 Chemical Status listed as not requiring assessment. RNAG and quality element affected: • Flow: Hydrological regime	Yes	Section J is located within this water body catchment.

Water body name and ID number	Type	Description	Screened in?	Justification
		• Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) Objectives: • Good Ecological Status by 2015 • Good Chemical Status by 2063		
Itchen (GB107042022580)	River	At Good Ecological Status although note hydrological regime does not support Good. In 2019 Chemical Status was at Fail due to Benzo(g-h-i)perylene, mercury and its compounds and PDBE. In 2022 Chemical Status was listed as not requiring assessment. RNAG and quality element affected: • Physical modification: Hydrological regime • Suspect data: Hydrological regime • Unknown (pending investigation): Benzo(g-h-i)perylene • Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) Objectives: • Good Ecological Status by 2015 • Good Chemical Status by 2063	Yes	Section L and Section M are located within this water body catchment.
Itchen Navigation (GB70710008)	Canal	This water body is designated as a HMWB and is at Good Ecological Status. In 2019 Chemical Status was listed as Fail due to mercury and its compounds and PBDE. In 2022 Chemical Status is listed as not requiring assessment.	Yes	Section M crosses this water body.

Water body name and ID number	Type	Description	Screened in?	Justification
		RNAG and quality element affected: • Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) Objectives • Good Ecological Status by 2015 • Good Chemical Status by 2063		
Coastal catchment of Southampton Water (GB520704202800)	Transitional	This water body is designated as a HMWB and is at Moderate Ecological Status due to dissolved inorganic nitrogen and supporting elements (surface water)- mitigation measures assessment. In 2019 Chemical Status was at Fail due to Benzo(g-h-i)perylene, mercury and its compounds and PDBE. In 2022 Chemical Status was listed as not requiring assessment. RNAG and quality element affected: • Diffuse pollution: Dissolved inorganic nitrogen • Point source pollution: Dissolved inorganic nitrogen • Physical modification: Mitigation measures assessment • Unknown (pending investigation): Benzo(g-h-i)perylene • Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) Objectives: • Moderate Ecological Potential by 2015	Yes	Section H and Section J are located within this water body catchment.

Water body name and ID number	Type	Description	Screened in?	Justification
		• Good Chemical Status by 2063		
Coastal catchment of Langstone Harbour (GB580705130000)	Transitional	This water body is designated as a HMWB and is at Moderate Overall Status due to biological quality elements angiosperms and saltmarsh. Supporting elements assessment (surface water) and mitigation measures assessment are also Moderate. Chemical Status in 2019 was assessed as Fail due to mercury and its compounds and PBDE. In 2022 Chemical Status is listed as not requiring assessment. RNAG and quality element affected: • Physical modification (angiosperms, mitigation measures assessment) • Unknown (pending investigation) (mercury and Its compounds) • Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) Objectives: • Good Ecological Potential by 2027 • Good Chemical Status by 2063	Yes	Section D is located within this water body catchment.
Langstone Oysterbeds (GB510070073000)		This waterbody is designated as a AWB and is at Good Ecological Potential although note supporting elements (surface water) are at Moderate and in 2019 Chemical Status is at Fail due to mercury and its compounds and PBDEs. In 2022 Chemical Status is listed as not requiring assessment. RNAG and quality element affected:	Yes	Section D is located within the coastal catchment of Langstone Harbour. Langstone Oysterbeds are hydrologically connected to Langstone Harbour.

Water body name and ID number	Type	Description	Screened in?	Justification
		• Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) Objectives: • Good Ecological Potential by 2015 • Good Chemical Status by 2063		

7.3 Stage 2: Scoping

Introduction

7.3.1 This section presents the results of the scoping stage undertaken on the water bodies identified in Table 7-3. Scoping examines the potential for the activities identified to impact water bodies and their quality elements, any RBMP mitigation measures identified by the EA, and any associated Protected Areas. The results of the scoping stage determine which water bodies and quality elements require further assessment as part of the Stage 3: Impact Assessment.

Impacts of activities on water body quality elements

Assessment of potential mechanisms for impact

7.3.2 The results of the scoping stage are summarised in Table 7-4.

7.3.3 This assessment demonstrates that the potential impacts associated with Proposed Development activities for this component during construction and operation would be managed via embedded mitigation. As a result, this component is scoped out of Stage 3: Impact Assessment.

Table 7-4 Activities with the potential to affect water body quality elements and status for Pipeline between the Water Recycling Plant site and Otterbourne Water Supply Works

Activity	Water body	Quality element scoping results
C1 (Section D: The Water Recycling Plant site to Portsdown Hill)	Potwell Trib (GB107042016400) Coastal catchment of Langstone Harbour (GB580705130000) Langstone Oysterbeds (GB510070073000)	**Hydromorphology:** The Pipeline would be tunnelled in this section, and would not include washout valves. This activity would not involve any direct interaction with surface watercourses in the Langstone Harbour or Potwell Tributary catchments. There are therefore no pathways for effect on the hydromorphology of these water bodies. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: The Pipeline would be tunnelled in this section, and would not include washout valves. This activity would not therefore require any direct interaction with surface watercourses in the Langstone Harbour or Potwell Tributary catchments. There are therefore no pathways for effect on the chemistry and physico-chemistry of these water bodies. Effects on chemistry and physico-chemistry are therefore scoped out.
		Biology: The Pipeline would be tunnelled in this section, and would not include washout valves. This activity would not therefore require any direct interaction with surface watercourses in the Langstone Harbour or Potwell Tributary catchments and therefore would not directly affect the biological quality elements. Furthermore, the Outline CEMP (Document reference 7.1, DCO Volume 7) (as summarised in section 3.2 of this report) includes measures to prevent significant changes to the supporting hydromorphological and physico-chemical quality elements. There are therefore no pathways for effect on the biology of these water bodies. Effects on biology are therefore scoped out.
	East Hants Chalk (GB40701G502700) South Hants Lambeth Group (GB40702G503700)	**Quantity:** The Pipeline would be tunnelled, but would require shaft construction. The shafts would primarily be constructed in the chalk aquifer and therefore these works are likely to directly interact with the underlying principal aquifer. The proposed shafts are located approximately 500m south of the SPZ1/SPZ1c related to Bedhampton Springs. Whilst dewatering may be required to construct the tunnel shaft, dewatering is not considered to be required on a scale and duration that would result in any effects on the water body. A range of measures have been included in the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects on groundwater receptors (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on the groundwater body. Furthermore, any abstraction would be subject to a licence,

Activity	Water body	Quality element scoping results
		unless abstraction is less than 20m^3 per day or subject to a regulatory position statement (which would mean the abstraction is of low risk to the environment). Effects on groundwater quantity are therefore scoped out.
		Quality: The Pipeline in Section D would be tunnelled and would not include washout valves, but would require shaft construction. The shaft would primarily be constructed in the chalk aquifer and therefore these works are likely to directly interact with the underlying principal aquifer. The proposed shafts are located approximately 500m south of SPZ1/SPZ1c protective of Bedhampton Springs. A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects (as summarised in section 3.2 of this report). This includes the adoption of a methodology that excludes groundwater during subsurface excavations, the preparation of a Voids Treatment Protocol, and the completion of Foundation Works Risk Assessments. These measures are considered to be sufficient to avoid a pathway for effect on the groundwater body. Effects on groundwater quality are therefore scoped out.
C2 (Section E: Portsdown Hill to Boarhunt)	Potwell Trib (GB107042016400) Wallington below Southwick (GB107042016360)	**Hydromorphology:** The construction of Section E would not require any direct interaction with watercourses in the Potwell Trib or Wallington below Southwick catchments, where trenchless techniques would be used to cross the watercourses. The remainder of Section E would be constructed using trenched open-cut construction, however trenchless construction may be utilised at environmentally sensitive locations. A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects, including measures to manage construction drainage and the supply of fine sediment and contaminants and measures to minimise the effects of trenched open-cut crossings on Ordinary Watercourses (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on the hydromorphology of the water bodies. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on hydromorphology are therefore scoped out.

Activity	Water body	Quality element scoping results
		Chemistry and physico-chemistry: The construction of Section E would not require any direct interaction with watercourses in the Potwell Trib or Wallington below Southwick catchments, where trenchless techniques would be used to cross the watercourses. The remainder of Section E would be constructed using trenched open-cut construction, however trenchless construction may be utilised at environmentally sensitive locations. A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects, including measures to manage construction drainage and the supply of fine sediment and contaminants (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on the chemistry and physico-chemistry of the water bodies. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on chemistry and physico-chemistry are therefore scoped out.
		Biology: The construction of Section E would not require any direct interaction with watercourses in the Potwell Trib or Wallington below Southwick catchments, where trenchless techniques would be used to cross the watercourses. Pipeline construction would not therefore directly affect the biological quality elements. The Outline CEMP (Document reference 7.1, DCO Volume 7) (as summarised in section 3.2 of this report) includes measures to prevent significant changes to the supporting hydromorphology and physico-chemistry from construction activities in their catchments and thus prevent indirect effects on biology. These measures are considered to be sufficient to avoid a pathway for effect on the biology of the water bodies. Furthermore, as set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on biology are therefore scoped out.
	East Hants Chalk (GB40701G502700)	**Quantity:** Section E would be primarily constructed using an open-cut method. The proposed excavations could penetrate the underlying chalk aquifer and Secondary aquifers, where present, and may require temporary dewatering to maintain the water table below excavation. Excavations

Activity	Water body	Quality element scoping results
	South Hants Lambeth Group (GB40702G503700)	for any shafts for trenchless crossings are likely to encounter groundwater and to require groundwater control measures. This could impact groundwater receptors such as the underlying principal aquifer and associated receptors including licenced abstractions. Groundwater abstraction would be subject to an abstraction licence, unless abstraction is less than 20m^3 per day or subject to a regulatory position statement (which would mean the abstraction is of low risk to the environment), and the Outline CEMP (Document reference 7.1, DCO Volume 7) sets out temporary works drainage requirements aiming to maintain water balance within the catchment. These measures are considered to be sufficient to avoid a pathway for effect on the water bodies. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to groundwater. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on groundwater quantity are therefore scoped out.
		Quality: A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects (as summarised in section 3.2 of this report). This includes the adoption of a methodology that excludes groundwater during subsurface excavations, the preparation of a Voids Treatment Protocol, and the completion of Foundation Works Risk Assessments. These measures are considered to be sufficient to avoid a pathway for effect on the water bodies. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to groundwater. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on groundwater quality are therefore scoped out.
C3 (Section F: Boarhunt to Crockerhill)	Wallington below Southwick (GB107042016360)	**Hydromorphology:** Section F would cross the River Wallington, which is designated as a Main River. Trenchless construction would be used to cross the river and there would therefore be no direct disturbance of this watercourse. Furthermore, there would be no requirement to install a temporary crossing to provide access across the watercourse as part of this component. There is therefore no direct pathway for effect on hydromorphology. The remaining parts of Section F would be constructed using trenched open-cut construction, however trenchless construction may be utilised at environmentally sensitive locations. A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume

Activity	Water body	Quality element scoping results
		7) to avoid or reduce environmental effects associated with trenched open-cut construction, including measures to prevent the supply of sediment and manage runoff (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on the water body. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: A trenchless crossing is proposed for the River Wallington. There is therefore no direct pathway for effect on hydromorphology. Trenched open-cut construction methods would be used elsewhere in the pipe section. A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects, including measures to prevent the supply of sediment and contaminants and manage runoff (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on the water body. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on chemistry and physico-chemistry are therefore scoped out.
		Biology: A trenchless crossing is proposed for the River Wallington. There is therefore no direct pathway for effect on biology. The Outline CEMP (Document reference 7.1, DCO Volume 7) (as summarised in section 3.2 of this report) includes measures to prevent significant changes to the supporting hydromorphological and physico-chemical quality elements from construction activities in the catchment, and thus prevent indirect effects on biology. These measures are considered to be sufficient to avoid a pathway for effect on the biology of the water bodies. Furthermore, as set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process.

Activity	Water body	Quality element scoping results
		Effects on biology are therefore scoped out.
	East Hants Chalk (GB40701G502700) South Hants Lambeth Group (GB40702G503700)	**Quantity:** Section F of the Pipeline would primarily be constructed using an open-cut method. The proposed excavations could penetrate the underlying chalk aquifer and Secondary aquifers, where present and may require temporary dewatering to maintain the water table below excavation. This could impact groundwater receptors within the ZoI such as the underlying principal aquifer and dependent receptors (such as chalk streams). Groundwater abstraction would be subject to an abstraction licence, unless abstraction is less than 20m^3 per day or subject to a regulatory position statement (which would mean the abstraction is of low risk to the environment) and the Outline CEMP (Document reference 7.1, DCO Volume 7) sets out temporary works drainage requirements aiming to maintain water balance within the catchment. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quantity. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to groundwater. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on groundwater quantity are therefore scoped out.
		Quality: A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects (as summarised in section 3.2 of this report). This includes the adoption of a methodology that excludes groundwater during subsurface excavations, the preparation of a Voids Treatment Protocol, and the completion of Foundation Works Risk Assessments. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quality. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to groundwater. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on groundwater quality are therefore scoped out.
C4 (Section G: Crockerhill	Meon (GB107042016640)	**Hydromorphology:** Section G would cross the River Meon, which is designated as a Main River. However, trenchless construction would be used and there would therefore be no direct disturbance of the watercourse. Furthermore, there would be no requirement to install a

Activity	Water body	Quality element scoping results
to Wickham)		temporary crossing to provide access across the watercourse as part of this component. There is therefore no direct pathway for effect on hydromorphology. The remaining parts of Section G would be constructed using trenched open-cut construction, however trenchless construction may be utilised at environmentally sensitive locations. A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects associated with trenched open-cut installation, including measures to prevent the supply of sediment and manage runoff (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on hydromorphology. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: Section G would cross the River Meon, which is designated as a Main River. However, trenchless construction would be used therefore it is anticipated that there would therefore be no direct disturbance of the watercourse. There is therefore no direct pathway for effect on chemistry and physico-chemistry. The remaining parts of Section G would be constructed using trenched open-cut construction, however trenchless construction may be utilised at environmentally sensitive locations. A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7), including measures to prevent the supply of sediment and contaminants and manage runoff (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on chemistry and physico-chemistry. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on chemistry and physico-chemistry are therefore scoped out.
		Biology: A trenchless crossing is proposed for the River Meon. There is therefore no direct pathway for effect on biology.

Activity	Water body	Quality element scoping results
		Whilst trenched open-cut construction methods would be used elsewhere in the pipe section, a range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects, including measures to manage construction drainage and the supply of fine sediment and contaminants and measures to minimise the effects of trenched open-cut crossings on Ordinary Watercourses (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on hydromorphology, chemistry and physico-chemistry, and would therefore also prevent a pathway for effect on biology. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on biology are therefore scoped out.
	South East Hants Bracklesham Group (GB40702G503000)	**Quantity:** A part of Section G would be constructed using an open-cut method. The proposed excavations could penetrate the underlying aquifers, where present and may require temporary dewatering to maintain the water table below excavation. Where trenchless techniques are to be used, e.g. River Meon and two roads (Hoad's Hill (A32) and Winchester Road (A334)), excavation of two shafts/pits on either side of the crossing would be required, the depth of which would be determined by the depth of the tunnel. Groundwater control measures could be required where the groundwater level is higher than the depth of excavation. Groundwater abstraction would be subject to an abstraction licence, unless abstraction is less than 20m^3 per day or subject to a regulatory position statement (which would mean the abstraction is of low risk to the environment). The Outline CEMP (Document reference 7.1, DCO Volume 7) sets out temporary works drainage requirements aiming to maintain water balance within the catchment. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quantity. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to groundwater. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on groundwater quantity are therefore scoped out.
		Quality: A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects (as summarised in section 3.2 of

Activity	Water body	Quality element scoping results
		this report). This includes the adoption of a methodology that excludes groundwater during subsurface excavations, the preparation of a Voids Treatment Protocol, and the completion of Foundation Works Risk Assessments. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quality. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to groundwater. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on groundwater quality are therefore scoped out.
C5 (Section H: Wickham to Shedfield)	Coastal catchment of Southampton Water (GB520704202800) Meon (GB107042016640)	**Hydromorphology:** The construction of Section H would not require any direct interaction with watercourses in the Meon or coastal catchments. There is therefore no direct pathway for effect on hydromorphology. With the exception of several trenchless road crossings, Section H would be constructed using trenched open-cut construction, although trenchless construction may be utilised at environmentally sensitive locations. The Outline CEMP (Document reference 7.1, DCO Volume 7) sets out a series of measures to avoid or reduce environmental effects associated with trenched open-cut installation and the demolition of small storage structures, including measures to prevent the supply of sediment and manage runoff (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on hydromorphology. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: The construction of Section H would not require any direct interaction with watercourses in the Meon or coastal catchments. There is therefore no direct pathway for effect on chemistry or physico-chemistry. With the exception of several trenchless road crossings, Section H would be constructed using trenched open-cut construction, although trenchless construction may be utilised at environmentally sensitive locations. The Outline CEMP (Document reference 7.1, DCO Volume 7) sets out a series of measures to avoid or reduce environmental effects associated with trenched open-cut installation and the demolition of small storage structures, including measures to prevent the supply of sediment and contaminants and manage runoff (as summarised in section 3.2 of

Activity	Water body	Quality element scoping results
		this report). These measures are considered to be sufficient to avoid a pathway for effect on chemistry and physico-chemistry. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Chemistry and physico-chemistry are therefore scoped out.
		Biology: The construction of Section H would not require any direct interaction with watercourses in the Meon or coastal catchments. There is therefore no direct pathway for effect on biology. With the exception of several trenchless road crossings, Section H would be constructed using trenched open-cut construction, although trenchless construction may be utilised at environmentally sensitive locations. The Outline CEMP (Document reference 7.1, DCO Volume 7) sets out a series of measures to avoid or reduce environmental effects associated with trenched open-cut installation and the demolition of small storage structures, including measures to prevent the supply of sediment and contaminants and manage runoff (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on hydromorphology, chemistry and physico-chemistry and would also prevent indirect effects on biology. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on biology are therefore scoped out.
	South East Hants Bracklesham Group (GB40702G503000)	**Quantity:** Part of the Pipeline would be constructed using an open-cut method. The proposed excavations could penetrate the underlying aquifers, where present and may require temporary dewatering to maintain the water table below excavation. Temporary dewatering could impact groundwater-dependent receptors such as unlicenced abstractions. Groundwater abstraction would be subject to an abstraction licence, unless abstraction is less than $20m^3$ per day or subject to a regulatory position statement (which would mean the abstraction is of low risk to the environment) and the Outline CEMP (Document reference 7.1, DCO Volume 7) (as summarised in section 3.2 of this report) sets out temporary works drainage requirements aiming to maintain water balance within the catchment. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quantity.

Activity	Water body	Quality element scoping results
		To avoid impact on High Street and Portsdown Hill Road (B2177), the Pipeline construction would be undertaken using a trenchless method. This could impact groundwater receptors such as unlicenced water abstractions. The Outline CEMP (Document reference 7.1, DCO Volume 7) (as summarised in section 3.2 of this report) sets out a series of measures to prevent impacts on groundwater levels. Groundwater abstraction would be subject to an abstraction licence, unless abstraction is less than 20m^3 per day or subject to a regulatory position statement (which would mean the abstraction is of low risk to the environment). These measures are considered to be sufficient to avoid a pathway for effect on groundwater quantity. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to groundwater. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on groundwater quantity are therefore scoped out.
		Quality: A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects (as summarised in section 3.2 of this report). This includes the adoption of a methodology that excludes groundwater during subsurface excavations, the preparation of a Voids Treatment Protocol, and the completion of Foundation Works Risk Assessments. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quality. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to groundwater. There is therefore no pathway for effect on this water body from the use of washouts in the commissioning process. Effects on groundwater quality are therefore scoped out.
C6 (Section J: Shedfield to the River Hamble)	Main River Hamble (GB107042016250) Moors Stream (GB107042016260) Coastal catchment associated with Southampton Water (GB520704202800)	**Hydromorphology:** The construction of Section J would not require any direct interaction with watercourses in the Main River Hamble, Moors Stream or coastal catchments. There is therefore no direct pathway for effect on hydromorphology. Some trenchless construction is required under roads. The remaining parts of Section J would be constructed using trenched open-cut construction, however trenchless construction may be utilised at environmentally sensitive locations. The Outline CEMP (Document reference 7.1, DCO Volume 7) sets out a series of measures to avoid or reduce environmental effects associated with trenched open-cut construction and the demolition of small storage structures, including measures to prevent the supply of sediment and manage runoff (as summarised in section 3.2 of

Activity	Water body	Quality element scoping results
		this report). These measures are considered to be sufficient to avoid a pathway for effect on hydromorphology. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface waters. There is therefore no pathway for effect on these water bodies from the use of washouts in the commissioning process. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: Some trenchless construction is required under roads. The remaining parts of Section J would be constructed using trenched open-cut construction, however trenchless construction may be utilised at environmentally sensitive locations. The Outline CEMP (Document reference 7.1, DCO Volume 7) sets out a series of measures to avoid or reduce environmental effects associated with trenched open-cut construction and the demolition of small storage structures, including measures to prevent the supply of sediment and contaminants and manage runoff (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on chemistry and physico-chemistry. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on these water bodies from the use of washouts in the commissioning process. Effects on chemistry and physico-chemistry are therefore scoped out.
		Biology: The construction of Section J would not require any direct interaction with watercourses in the Main River Hamble, Moors Stream or Coastal catchments. There would therefore be no direct impacts on biological quality elements. Whilst trenched open-cut construction methods would be used in the catchments, a range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects, including measures to manage construction drainage and the supply of fine sediment and contaminants and measures to minimise the effects of demolition and trenched open-cut crossings on Ordinary Watercourses (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on chemistry and physico-chemistry, and the biology that these elements support. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is

Activity	Water body	Quality element scoping results
		therefore no pathway for effect on these water bodies from the use of washouts in the commissioning process. Effects on biology are therefore scoped out.
	South East Hants Bracklesham Group (GB40702G503000)	**Quantity:** The Pipeline would be constructed primarily using an open-cut method, with the exception of trenchless crossings beneath roads. The proposed excavations could penetrate the underlying aquifers, where present and may require temporary dewatering to maintain the water table below excavation. Groundwater abstraction would be subject to an abstraction licence, unless abstraction is less than $20m^3$ per day or subject to a regulatory position statement (which would mean the abstraction is of low risk to the environment). A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on groundwater quantity. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to groundwater. There is therefore no pathway for effect on these water bodies from the use of washouts in the commissioning process. Effects on groundwater quantity are therefore scoped out.
		Quality: A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects (as summarised in section 3.2 of this report). This includes the adoption of a methodology that excludes groundwater during subsurface excavations, the preparation of a Voids Treatment Protocol, and the completion of Foundation Works Risk Assessments. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quality. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to groundwater. There is therefore no pathway for effect on these water bodies from the use of washouts in the commissioning process. Effects on groundwater quality are therefore scoped out.
C7 (Section K: The River	Main River Hamble (GB107042016250)	**Hydromorphology:** Section K would require a single crossing of the Main River Hamble, which is designated as a Main River. However, a trenchless technique would be employed and there would therefore be no direct disturbance of the watercourse. There would be no requirement to

Activity	Water body	Quality element scoping results
Hamble to Lower Upham)	Upper Hamble (GB107042016280) Horton Heath Stream (GB107042016270)	install a temporary crossing to provide access across the watercourse as part of this component. There is therefore no direct pathway for effect on hydromorphology. The remaining parts of Section K would be constructed using trenched open-cut construction, however trenchless construction may be utilised at environmentally sensitive locations. A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects associated with trenched open-cut construction, including measures to prevent the supply of sediment and manage runoff (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on hydromorphology. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on these water bodies from the use of washouts in the commissioning process. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: The construction of Section K would not require any interaction with watercourses in the Horton Heath Stream catchment, although a single crossing of the River Hamble would be required. A trenchless technique would be employed and there would therefore be no direct disturbance of the watercourse. There would be no requirement to install a temporary crossing to provide access across the watercourse as part of this component. There is therefore no direct pathway for effect on chemistry and physico-chemistry. The remaining parts of Section K would be constructed using trenched open-cut construction, however trenchless construction may be utilised at environmentally sensitive locations. A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects associated with trenched open-cut installation, including measures to prevent the supply of sediment and contaminants and manage runoff (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on chemistry and physico-chemistry. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on these water bodies from the use of washouts in the commissioning process. Effects on chemistry and physico-chemistry are therefore scoped out.

Activity	Water body	Quality element scoping results
		Biology: The construction of Section K would not require any direct interaction with watercourses in the Main River Hamble, Upper Hamble or Horton Heath Stream catchments. There is therefore no direct pathway for effect on biology. Whilst trenched open-cut construction methods would be used in the catchment, a range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7). These would prevent indirect impacts on biology and also manage impacts on the hydromorphology and physico-chemistry that supports the biological quality elements. These measures are considered to be sufficient to avoid a pathway for effect on biology. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on these water bodies from the use of washouts in the commissioning process. Effects on biology are therefore scoped out.
C8 (Section L: Lower Upham to Brambridge)	Horton Heath Stream (GB107042016270) Bow Lake (GB107042016650) Itchen (GB107042022580)	**Hydromorphology:** The construction of Section L would not require any direct interaction with watercourses in the Horton Heath Stream catchment. Section L also crosses Bow Lake and an upstream tributary of the River Itchen. The watercourses would be crossed using a trenchless open-cut construction technique. There is therefore no direct pathway for effect on hydromorphology. The remaining parts of Section L would be constructed using trenched open-cut construction, however trenchless construction may be utilised at environmentally sensitive locations. A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects associated with watercourse crossings and construction and demolition activities in the river catchment, including measures to prevent the supply of sediment and manage runoff (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on hydromorphology. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to groundwater. There is therefore no pathway for effect on these water bodies from the use of washouts in the commissioning process. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: The construction of Section L would not require any direct interaction with watercourses in the Horton Heath Stream catchment. Section L intersects with

Activity	Water body	Quality element scoping results
		Bow Lake and an upstream tributary of the River Itchen. These water bodies would be crossed using trenchless construction. There is therefore no direct pathway for effect on chemistry and physico-chemistry. The remaining parts of Section L would be constructed using trenched open-cut construction, however trenchless construction may be utilised at environmentally sensitive locations. A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects associated with watercourse crossings and construction and demolition activities in the river catchment, including measures to prevent the supply of sediment and contaminants and manage runoff (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on chemistry and physico-chemistry. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on these water bodies from the use of washouts in the commissioning process. Effects on hydromorphology are therefore scoped out.
		Biology: The construction of Section L would not require any direct interaction with watercourses in the Horton Heath Stream catchment. Section L also crosses Bow Lake and an upstream tributary of the River Itchen. The watercourses would be crossed using a trenchless open-cut construction technique. There is therefore no direct pathway for effect on biology. Whilst trenched open-cut construction methods would be used in the catchment in the water bodies, a range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7). These measures are considered to be sufficient to avoid a pathway for direct effects on biology and also manage impacts on the hydromorphology and physico-chemistry that supports the biological quality elements. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on these water bodies from the use of washouts in the commissioning process. Effects on biology are therefore scoped out.
		Quantity: The Pipeline would be constructed primarily using an open-cut method. The proposed excavations could penetrate the underlying aquifers, where present and may require temporary dewatering to maintain the water table below excavation level. Groundwater abstraction would be

Activity	Water body	Quality element scoping results
	East Hants Lambeth Group (GB40702G500800)	subject to an abstraction licence, unless abstraction is less than 20m^3 per day or subject to a regulatory position statement (which would mean the abstraction is of low risk to the environment). A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects (as summarised in section 3.2 of this report), including a series of measures to prevent impacts on groundwater levels and temporary works drainage requirements aiming to maintain water balance within the catchment. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quantity. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to groundwater. There is therefore no pathway for effect on these water bodies from the use of washouts in the commissioning process. Effects on groundwater quantity are therefore scoped out.
		Quality: A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects (as summarised in section 3.2 of this report). This includes the adoption of a methodology that excludes groundwater during subsurface excavations, the preparation of a Voids Treatment Protocol, and the completion of Foundation Works Risk Assessments. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quality. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to groundwater. There is therefore no pathway for effect on these water bodies from the use of washouts in the commissioning process. Effects on groundwater quality are therefore scoped out.
C9 (Section M: Brambridge to Otterbourne Water Supply Works)	Itchen (GB107042022580) Itchen Navigation (GB70710008)	**Hydromorphology:** Section M intersects with the River Itchen and one of its tributaries. However, a trenchless technique would be employed and there would therefore be no direct disturbance of either watercourse. There is therefore no direct pathway for effect on hydromorphology. The remaining parts of Section M would be constructed using a trenched open-cut construction technique, although trenchless construction may be utilised at environmentally sensitive locations. A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects associated with watercourse crossings, ground disturbance and demolition, including measures to prevent the supply of sediment and

Activity	Water body	Quality element scoping results
		manage runoff (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on hydromorphology. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on these water bodies from the use of washouts in the commissioning process. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: Section M intersects with the River Itchen and one of its tributaries. However, a trenchless technique would be employed and there would therefore be no direct disturbance of either watercourse. There is therefore no direct pathway for effect on chemistry or physico-chemistry. The remaining parts of Section M would be constructed using a trenched open-cut construction technique, although trenchless construction may be utilised at environmentally sensitive locations. A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects associated with watercourse crossings and construction and demolition activities in the river catchment, including measures to prevent the supply of sediment and contaminants and manage surface runoff (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on chemistry and physico-chemistry. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on these water bodies from the use of washouts in the commissioning process. Effects on chemistry and physico-chemistry are therefore scoped out.
		Biology: Section M intersects with the River Itchen and one of its tributaries. However, a trenchless technique would be employed and there would therefore be no direct disturbance of either watercourse, and no direct impacts on biological quality elements. There is therefore no direct pathway for effect on biology. The remaining parts of Section M would be constructed using a trenched open-cut construction technique, although trenchless construction may be utilised at environmentally sensitive locations. A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7). These would prevent impacts on biology and also manage impacts on the

Activity	Water body	Quality element scoping results
		hydromorphology and physico-chemistry that supports the biological quality elements. These measures are considered to be sufficient to avoid a pathway for effect on biology. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to surface water. There is therefore no pathway for effect on these water bodies from the use of washouts in the commissioning process. Effects on biology are therefore scoped out.
	River Itchen Chalk (GB40701G505000) Central Hants Lambeth Group (GB40702G503800)	**Quantity:** To avoid impact on the River Itchen and one of its tributaries, Pipeline construction would be undertaken using a trenchless method. The shafts and main tunnelling works associated with the Itchen River crossing would be located outside of the SPZ related to the Otterbourne WSW. These works are unlikely to encounter the chalk aquifer and would be undertaken in the lower permeability bedrock (non-aquifer) that confines the chalk below. The low permeability of the bedrock means that dewatering is likely to be minimal. Furthermore, all groundwater abstractions would be subject to an abstraction licence, unless abstraction is less than $20m^3$ per day or subject to a regulatory position statement (which would mean the abstraction is of low risk to the environment). Part of the Pipeline would be constructed using a trenched open-cut method and may require an element of groundwater control. The proposed excavations could penetrate the underlying Principal and Secondary aquifers, where present. Temporary dewatering could impact groundwater-dependent receptors such as abstractions and chalk streams. In addition, the trenchless crossing (and one of its shafts) of the Itchen tributary would be partially within the principal chalk aquifer and within the SPZ1. These works could impact groundwater receptors within the ZoI such as the licenced water abstractions. However, a range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce effects on groundwater quantity and movement, including a series of measures to prevent impacts on groundwater levels and temporary works drainage requirements aiming to maintain water balance within the catchment (as summarised in section 3.2 of this report). These measures are considered to be sufficient to avoid a pathway for effect on groundwater quantity. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to groundwater. There is therefore no pathway for effect on these water bodies from the use of washouts in the commissioning process.

Activity	Water body	Quality element scoping results
		Impacts on groundwater quantity are therefore scoped out.
		Quality: A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects (as summarised in section 3.2 of this report). This includes the adoption of a methodology that excludes groundwater during subsurface excavations, the preparation of a Voids Treatment Protocol, and the completion of Foundation Works Risk Assessments. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quality. As set out in the Outline CEMP (Document reference 7.1, DCO Volume 7), commissioning washouts would be captured in a tanker and would not be released to groundwater. There is therefore no pathway for effect on these water bodies from the use of washouts in the commissioning process. Effects on groundwater quality are therefore scoped out.
Operation		
O1 (Section D: The Water Recycling Plant site to Portsdown Hill)	Potwell Trib (GB107042016400) Coastal catchment of Langstone Harbour (GB580705130000)	**Hydromorphology:** Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment to the surface drainage network. However, these activities would be subject to best practice measures to manage drainage and water quality as set out in the OEMP (Document reference 7.7, DCO Volume 7) (summarised in section 3.2 of this report) to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on hydromorphology. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: Ground disturbance and the use of construction materials and plant during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment, fuel and lubricants into the surface drainage network. However, these activities would be subject to best practice measures to manage drainage and water quality as set out in the OEMP (Document reference 7.7, DCO Volume 7) (summarised in section 3.2 of this report) to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on chemistry and physico-chemistry.

Activity	Water body	Quality element scoping results
		Furthermore, the operational use of the Pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on chemistry and physico-chemistry are therefore scoped out.
		Biology: Ground disturbance and the use of construction materials and plant during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment, fuel and lubricants into the surface drainage network. However, these activities would be subject to best-practice measures to manage drainage and water quality as set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report). These would prevent impacts on biology and also manage impacts on the hydromorphology and physico-chemistry that supports the biological quality elements. These measures are considered to be sufficient to avoid a pathway for effect on biology. Furthermore, the operational use of the Pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on biology are therefore scoped out.
	East Hants Chalk (GB40701G502700) South Hants Lambeth Group (GB40702G503700)	**Quantity:** Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in temporary localised changes in groundwater levels/flows. However, legislative requirements (abstraction licensing) and best-practice measures to manage drainage set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report) would be put in place to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quantity. Furthermore, the operational use of the Pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on groundwater quantity are therefore scoped out.
		Quality: Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment to the surface drainage network. However, best-practice measures to manage drainage and water quality set

Activity	Water body	Quality element scoping results
		out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report) would be put in place to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quality. Furthermore, the operational use of the Pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on groundwater quality are therefore scoped out.
O2 (Section E: Portsdown Hill to Boarhunt)	Potwell Trib (GB107042016400) Wallington below Southwick (GB107042016360)	**Hydromorphology:** Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment to the surface drainage network. However, best practice measures to manage drainage and water quality set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report) would be put in place to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on hydromorphology. Furthermore, the operational use of the Pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: Ground disturbance and the use of construction materials and plant during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment, fuel and lubricants into the surface drainage network. However, these activities would be subject to best practice measures to manage drainage and water quality as set out in the OEMP (Document reference 7.7, DCO Volume 7) (summarised in section 3.2 of this report) to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on chemistry and physico-chemistry. Furthermore, the operational use of the Pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on chemistry and physico-chemistry are therefore scoped out.

Activity	Water body	Quality element scoping results
		Biology: Ground disturbance and the use of construction materials and plant during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment, fuel and lubricants into the surface drainage network. However, these activities would be subject to best-practice measures to manage drainage and water quality as set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report). These would prevent impacts on biology and also manage impacts on the hydromorphology and physico-chemistry that supports the biological quality elements. These measures are considered to be sufficient to avoid a pathway for effect on biology. Furthermore, the operational use of the Pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on biology are therefore scoped out.
	East Hants Chalk (GB40701G502700) South Hants Lambeth Group (GB40702G503700)	**Quantity:** Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in temporary localised changes in groundwater levels/flows. However, legislative requirements (abstraction licensing) and best-practice measures to manage drainage set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report) would reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quantity. Furthermore, the operational use of the Pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on groundwater quantity are therefore scoped out.
		Quality: Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment to the surface drainage network. However, best-practice measures to manage drainage and water quality set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report) would be put in place to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quality. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be

Activity	Water body	Quality element scoping results
		captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on groundwater quality are therefore scoped out.
O3 (Section F: Boarhunt to Crockerhill)	Wallington below Southwick (GB107042016360)	**Hydromorphology:** Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment to the surface drainage network. However, best practice measures to manage drainage and water quality set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report) would be put in place to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on hydromorphology. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: Ground disturbance and the use of construction materials and plant during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment, fuel and lubricants into the surface drainage network. However, these activities would be subject to best practice measures to manage drainage and water quality as set out in the OEMP (Document reference 7.7, DCO Volume 7) (summarised in section 3.2 of this report) to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on chemistry and physico-chemistry. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on chemistry and physico-chemistry are therefore scoped out.
		Biology: Ground disturbance and the use of construction materials and plant during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment, fuel and lubricants into the surface drainage network. However, these activities would be subject to best-practice measures to manage drainage and water quality as set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report). These would prevent direct impacts on biology and also manage

Activity	Water body	Quality element scoping results
		impacts on the hydromorphology and physico-chemistry that supports the biological quality elements. These measures are considered to be sufficient to avoid a pathway for effect on biology. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on biology are therefore scoped out.
	East Hants Chalk (GB40701G502700) South Hants Lambeth Group (GB40702G503700)	**Quantity:** Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in temporary localised changes in groundwater levels/flows. However, legislative requirements (abstraction licensing) and best-practice measures to manage drainage set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report) would be put in place to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quantity. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on groundwater quantity are therefore scoped out.
		Quality: Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment to the surface drainage network. However, best-practice measures to manage drainage and water quality set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report) would be put in place to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quality. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on groundwater quality are therefore scoped out.
O4 (Section G:	Meon (GB107042016640)	**Hydromorphology:** Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment to the

Activity	Water body	Quality element scoping results
Crockerhill to Wickham)		surface drainage network. However, best practice measures to manage drainage and water quality set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report) would be put in place to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on hydromorphology. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: Ground disturbance and the use of construction materials and plant during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment, fuel and lubricants into the surface drainage network. However, these activities would be subject to best practice measures to manage drainage and water quality as set out in the OEMP (Document reference 7.7, DCO Volume 7) (summarised in section 3.2 of this report) to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on chemistry and physico-chemistry. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on chemistry and physico-chemistry are therefore scoped out.
		Biology: Ground disturbance and the use of construction materials and plant during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment, fuel and lubricants into the surface drainage network. However, these activities would be subject to best-practice measures to manage drainage and water quality as set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report). These would prevent impacts on biology and also manage impacts on the hydromorphology and physico-chemistry that supports the biological quality elements. These measures are considered to be sufficient to avoid a pathway for effect on biology. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation.

Activity	Water body	Quality element scoping results
		Effects on biology are therefore scoped out.
	South East Hants Bracklesham Group (GB40702G503000)	**Quantity:** Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in temporary localised changes in groundwater levels/flows. However, legislative requirements (abstraction licensing) and best-practice measures to manage drainage set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report) would be put in place to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quantity. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on groundwater quantity are therefore scoped out.
		Quality: Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment to the surface drainage network. However, best-practice measures to manage drainage and water quality set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report) would be put in place to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quality. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on groundwater quality are therefore scoped out.
O5 (Section H: Wickham to Shedfield)	Coastal catchment of Southampton Water (GB520704202800) Meon (GB107042016640)	**Hydromorphology:** Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment to the surface drainage network. However, best practice measures to manage drainage and water quality set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report) would be put in place to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on hydromorphology. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be

Activity	Water body	Quality element scoping results
		captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: Ground disturbance and the use of construction materials and plant during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment, fuel and lubricants into the surface drainage network. However, these activities would be subject to best practice measures to manage drainage and water quality as set out in the OEMP (Document reference 7.7, DCO Volume 7) (summarised in section 3.2 of this report) to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on chemistry and physico-chemistry. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on chemistry and physico-chemistry are therefore scoped out.
		Biology: Ground disturbance and the use of construction materials and plant during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment, fuel and lubricants into the surface drainage network. However, these activities would be subject to best-practice measures to manage drainage and water quality as set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report). These would prevent impacts on biology and also manage impacts on the hydromorphology and physico-chemistry that supports the biological quality elements. These measures are considered to be sufficient to avoid a pathway for effect on biology. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on biology are therefore scoped out.
	South East Hants Bracklesham Group (GB40702G503000)	**Quantity:** Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in temporary localised changes in groundwater levels/flows. However, legislative requirements (abstraction licensing) and best-practice measures to manage drainage set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of

Activity	Water body	Quality element scoping results
		this report) would be put in place to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quantity. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on groundwater quantity are therefore scoped out.
		Quality: Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment to the surface drainage network. However, best-practice measures to manage drainage and water quality set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report) would be put in place to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quality. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on groundwater quality are therefore scoped out.
O6 (Section J: Shedfield to the River Hamble)	Main River Hamble (GB107042016250) Moors Stream (GB107042016260) Coastal catchment associated with Southampton Water (GB520704202800)	**Hydromorphology:** Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment to the surface drainage network. However, best practice measures to manage drainage and water quality set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report) would be put in place to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on hydromorphology. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: Ground disturbance and the use of construction materials and plant during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment, fuel and lubricants into the surface

Activity	Water body	Quality element scoping results
		drainage network. However, these activities would be subject to best practice measures to manage drainage and water quality as set out in the OEMP (Document reference 7.7, DCO Volume 7) (summarised in section 3.2 of this report) to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on chemistry and physico-chemistry. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on chemistry and physico-chemistry are therefore scoped out.
		Biology: Ground disturbance and the use of construction materials and plant during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment, fuel and lubricants into the surface drainage network. However, these activities would be subject to best-practice measures to manage drainage and water quality as set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report). These would prevent impacts on biology and also manage impacts on the hydromorphology and physico-chemistry that supports the biological quality elements. These measures are considered to be sufficient to avoid a pathway for effect on biology. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on biology are therefore scoped out.
	South East Hants Bracklesham Group (GB40702G503000)	**Quantity:** Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in temporary localised changes in groundwater levels/flows. However, legislative requirements (abstraction licensing) and best-practice measures to manage drainage set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report) would be put in place to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quantity. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation.

Activity	Water body	Quality element scoping results
		Effects on groundwater quantity are therefore scoped out.
		Quality: Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment to the surface drainage network. However, best-practice measures to manage drainage and water quality set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report) would be put in place to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quality. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on groundwater quality are therefore scoped out.
O7 (Section K: The River Hamble to Lower Upham)	Main River Hamble (GB107042016250) Upper Hamble (GB107042016280) Horton Heath Stream (GB107042016270)	**Hydromorphology:** Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment to the surface drainage network. However, best practice measures to manage drainage and water quality set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report) would be put in place to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on hydromorphology. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: Ground disturbance and the use of construction materials and plant during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment, fuel and lubricants into the surface drainage network. However, these activities would be subject to best practice measures to manage drainage and water quality as set out in the OEMP (Document reference 7.7, DCO Volume 7) (summarised in section 3.2 of this report) to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on chemistry and physico-chemistry. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be

Activity	Water body	Quality element scoping results
		captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on chemistry and physico-chemistry are therefore scoped out.
		Biology: Ground disturbance and the use of construction materials and plant during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment, fuel and lubricants into the surface drainage network. However, these activities would be subject to best-practice measures to manage drainage and water quality as set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report). These would prevent impacts on biology and also manage impacts on the hydromorphology and physico-chemistry that supports the biological quality elements. These measures are considered to be sufficient to avoid a pathway for effect on biology. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on biology are therefore scoped out.
O8 (Section L: Lower Upham to Brambridge)	Horton Heath Stream (GB107042016270) Bow Lake (GB107042016650) Itchen (GB107042022580)	**Hydromorphology:** Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment to the surface drainage network. However, best practice measures to manage drainage and water quality set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report) would be put in place to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on hydromorphology. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: Ground disturbance and the use of construction materials and plant during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment, fuel and lubricants into the surface drainage network. However, these activities would be subject to best practice measures to manage drainage and water quality as set out in the OEMP (Document reference 7.7, DCO

Activity	Water body	Quality element scoping results
		Volume 7) (summarised in section 3.2 of this report) to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on chemistry and physico-chemistry. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on chemistry and physico-chemistry are therefore scoped out.
		Biology: Ground disturbance and the use of construction materials and plant during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment, fuel and lubricants into the surface drainage network. However, these activities would be subject to best-practice measures to manage drainage and water quality as set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report). These would prevent impacts on biology and also manage impacts on the hydromorphology and physico-chemistry that supports the biological quality elements. These measures are considered to be sufficient to avoid a pathway for effect on biology. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on biology are therefore scoped out.
	East Hants Lambeth Group (GB40702G500800)	**Quantity:** Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in temporary localised changes in groundwater levels/flows. However, legislative requirements (abstraction licensing) and best-practice measures to manage drainage set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report) would be put in place to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quantity. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on groundwater quantity are therefore scoped out.

Activity	Water body	Quality element scoping results
		Quality: Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment to the surface drainage network. However, best-practice measures to manage drainage and water quality set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report) would be put in place to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quality. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on groundwater quality are therefore scoped out.
O9 (Section M: Brambridge to Otterbourne Water Supply Works)	Itchen (GB107042022580) Itchen Navigation (GB70710008)	**Hydromorphology:** Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment to the surface drainage network. However, best practice measures to manage drainage and water quality set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report) would be put in place to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on hydromorphology. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: Ground disturbance and the use of construction materials and plant during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment, fuel and lubricants into the surface drainage network. However, these activities would be subject to best practice measures to manage drainage and water quality as set out in the OEMP (Document reference 7.7, DCO Volume 7) (summarised in section 3.2 of this report) to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on chemistry and physico-chemistry. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be

Activity	Water body	Quality element scoping results
		captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on chemistry and physico-chemistry are therefore scoped out.
		Biology: Ground disturbance and the use of construction materials and plant during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment, fuel and lubricants into the surface drainage network. However, these activities would be subject to best-practice measures to manage drainage and water quality as set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report). These would prevent impacts on biology and also manage impacts on the hydromorphology and physico-chemistry that supports the biological quality elements. These measures are considered to be sufficient to avoid a pathway for effect on biology. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on biology are therefore scoped out.
	River Itchen Chalk (GB40701G505000) Central Hants Lambeth Group (GB40702G503800)	**Quantity:** Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in temporary localised changes in groundwater levels/flows. However, legislative requirements (abstraction licensing) and best-practice measures to manage drainage set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this report) would be put in place to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quantity. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on groundwater quantity are therefore scoped out.
		Quality: Ground disturbance during the maintenance of buried and above-ground infrastructure could potentially result in localised increases in the supply of fine sediment to the surface drainage network. However, best-practice measures to manage drainage and water quality set out in the OEMP (Document reference 7.7, DCO Volume 7) (as summarised in section 3.2 of this

Activity	Water body	Quality element scoping results
		report) would be put in place to reduce this risk. These measures are considered to be sufficient to avoid a pathway for effect on groundwater quality. Furthermore, the operational use of the pipeline would not result in any releases of water into the environment (e.g. through operational testing of washout valves, where arisings would be captured and taken to a licensed facility for disposal, as summarised in section 3.2). There is therefore no pathway for effect on these water bodies from the use of washouts during operation. Effects on groundwater quality are therefore scoped out.

Impacts of Proposed Development activities on River Basin Management Plan improvement and mitigation measures

River Basin Management Plan measures applicable to each water body

7.3.4 The South East RBMP [8] does not identify any RBMP mitigation measures for the Moors Stream (GB107042016260), Itchen (GB107042022580), Bow Lake (GB107042016650), Meon (GB107042016640), Main River Hamble (GB107042016250), Upper Hamble (GB107042016280), Wallington below Southwick (GB107042016360) river water bodies and Langstone Oysterbeds (GB510070073000) AWB therefore, these water bodies are not considered further in this part of the assessment.

7.3.5 There are however RBMP mitigation measures listed for Potwell Trib (GB107042016400), Southampton Water (GB520704202800), Langstone Harbour (GB580705130000), Horton Heath Stream (GB107042016270) and Itchen Navigation (GB70710008) [8] (Table 7-5).

Table 7-5 Potential Impacts of the Pipeline between the Water Recycling plant site and Otterbourne Water Supply Works on River Basin Management Plan mitigation measures

Mitigation measure	Status	Potential impact
Potwell Trib (GB107042016400)		
Installation of structures designed to facilitate and improve the passage of migratory (e.g. salmon and sea trout) and non-migratory fish where structures cannot be removed	Not in place	This component does not require construction or the installation of permanent barriers to flow in the Potwell Trib therefore passage of migratory fish would not be impacted.
Implement a downstream flow regime that does not impact the ecology (applies to rivers and reservoirs)	Not in place	This component does not require construction or the installation of permanent barriers to flow in the Potwell Trib, therefore the flow regime of the water body would not be impacted.
Southampton Water (GB520704202800)		
Amending the timing of dredging and disposal operations so that they have a reduced impact on the ecology e.g. retiming to avoid breeding times of fish/birds	In place	Given no dredging is proposed, measures detailing changes to dredging practices would not be impacted.
Avoid the need for dredging activities	In place	
Implement an active and operational dredging disposal strategy – coast protection use	Not in place	
Implement an active and operational dredging disposal strategy – navigation, ports and harbour use	In place	

Mitigation measure	Status	Potential impact
Installation of structures designed to facilitate and improve the passage of migratory (e.g. salmon and sea trout) and non-migratory fish where structures cannot be removed	Not in place	The activities would take place in the coastal catchment of this water body but would not require any direct interaction with the tidal water body itself. They would not therefore prevent the future implementation of measures to improve the habitats in this water body.
Leaving habitat or parts of natural habitat while undertaking operations or maintenance in a water body	Not in place	
Managed realignment of flood defence assets	Not in place	
Preserve and/or restore existing in stream and riparian/shoreline habitats	Not in place	
Reduction of re-suspension of sediments	In place	
Rehabilitation of degraded bankside habitats to improve their physical structure and the condition of the riparian zone. Bank rehabilitation includes bank reprofiling, the creation of aquatic ledges and removal of hard bank protection	Not in place	
Removal of hard engineering structures that modify the natural flow and sediment regime, including weirs, locks, floodgates, sluices, and erosion control structures	Not in place	
Removal/softening of hard engineering structures that modify natural bank profile	Not in place	
Retro-fitting existing structures to accommodate niche habitats, as opposed to more substantial structural modifications that would be likely to deliver greater hydromorphological change but may not be possible given the use	Not in place	
Sediment removal or deposition for flood defence purposes; sediment removal and reinstatement for fisheries interest; aggregate extraction; land drainage and beach replenishment	In place	
Horton Heath Stream (GB107042016270)		
Removal/softening of hard engineering structures that modify natural bank profile	In place	The activities would not introduce any permanent structures into the watercourse and would not therefore reduce the effectiveness of this mitigation measure.
Good practice management of in channel and riparian vegetation works or maintenance practices (e.g. macrophyte cutting), carried out in a manner that considers the impacts of the activity upon ecology and hydromorphology	In place	The activities would not affect the management regime of the water body given that no new structures are required within it.

Mitigation measure	Status	Potential impact
Action(s) to reduce the extent and spread of INNS, including actions on the Applicant's own assets	In place	
Ensure best practice techniques are applied when undertaking maintenance activities to reduce impacts to the habitat	In place	
Langstone Harbour (GB580705130000)		
Managed realignment of flood defence assets	Not in place	The activities would take place in the coastal catchment of this water body but would not require any direct interaction with the tidal water body itself. They would not therefore prevent the future implementation of measures to improve the habitats in this water body.
Activity to create new habitat where it did not exist before	Not in place	
Removal/softening of hard engineering structures that modify natural bank profile	Not in place	
Retro-fitting existing structures to accommodate niche habitats, as opposed to more substantial structural modifications that would be likely to deliver greater hydromorphological change but may not be possible given the use	Not in place	
Leaving habitat or parts of natural habitat while undertaking operations or maintenance in a water body	Not in place	
Itchen Navigation (GB70710008)		
Removal/softening of hard engineering structures that modify natural bank profile	In place	The activities would not require any direct interaction with this water body and would not therefore reduce the effectiveness of these measures.
Preserve and/or restore existing in stream and riparian/shoreline habitats	In place	
Restore or increase in-channel morphological diversity e.g. riffle and pool creation and bar creation	In place	
Installation of structures designed to facilitate and improve the passage of migratory (e.g. salmon and sea trout) and non-migratory fish where structures cannot be removed	In place	
Retro-fitting existing structures to accommodate niche habitats, as opposed to more substantial structural modifications that would be likely to deliver greater hydromorphological change but may not be possible given the use	In place	
Structural changes to locks, sluices, weirs, beach control	In place	

Assessment of potential mechanisms for impact

7.3.6 Table 7-5 also presents an assessment of potential impacts of the activities associated with the component on RBMP mitigation measures. This demonstrates

that the activities would not counteract or adversely affect the delivery of the RBMP mitigation measures that are already in place and would not prevent the future implementation of the RBMP mitigation measures that are not yet in place. RBMP mitigation measures (either in place or not in place) do not, therefore, require assessment in Stage 3: Impact Assessment.

Impacts of the activities on Protected Areas

Protected Areas

7.3.7 The Clearing the Waters for All guidance [3] recommends further assessment of new projects on any Protected Areas that are within 2km. Protected Areas within 2km of the Pipeline are listed in Table 7-6 and shown in ES Appendix 19.2 Figure 9 Pipeline between the Water Recycling plant site and Otterbourne Water Supply Works against Protected Areas within a 2km buffer, Volume III, (Document reference 6.3, DCO Volume 6). Due to significant overlap in Protected Areas between water bodies and the length of the component assessed in this section, Protected Areas have not been separated into water bodies.

Table 7-6 Protected Areas within 2km

WRP to Otterbourne WSW Pipeline Section	Protected Area within 2km
Section D: The Water Recycling Plant site to Portsdown Hill	Chichester and Langstone Harbours SPA/Ramsar Solent Maritime SAC Chichester, Langstone and Portsmouth Harbours Eutrophic NVZ Fareham NVZ (groundwater) Langstone Harbour Shellfish Water Chichester Harbour (Emsworth Channel) Shellfish Water Langstone Harbour UWTDPA
Section E: Portsdown Hill to Boarhunt	Chichester, Langstone and Portsmouth Harbours Eutrophic NVZ Fareham NVZ (groundwater) Portsmouth Harbour UWTDPA
Section F: Boarhunt to Crockerhill	Chichester, Langstone and Portsmouth Harbours Eutrophic NVZ Fareham NVZ (groundwater)
Section G: Crockerhill to Wickham	Fareham NVZ (groundwater) Hamble Estuary Eutrophic NVZ Hamble Estuary UWTDPA
Section H: Wickham to Shedfield	River Meon SAC compensatory habitat Hamble Estuary Eutrophic NVZ Hamble Estuary UWTDPA
Section J: Shedfield to the River Hamble	Hamble Estuary Eutrophic NVZ Upper Hamble NVZ Hampshire Chalk NVZ Hamble Estuary UWTDPA

WRP to Otterbourne WSW Pipeline Section	Protected Area within 2km
	River Hamble UWTDPA
Section K: The River Hamble to Lower Upham	Upper Hamble NVZ Bow Lake NVZ Hampshire Chalk NVZ Hamble Estuary Eutrophic NVZ River Hamble UWTDPA River Itchen (Hampshire) UWTDPA Itchen DrWPA (surface) East Hants Chalk DrWPA
Section L: Lower Upham to Brambridge	River Itchen SAC Upper Hamble NVZ Hamble Estuary Eutrophic NVZ Bow Lake NVZ Hampshire Chalk NVZ River Itchen (Hampshire) UWTDPA Itchen DrWPA (surface) East Hants Chalk DrWPA
Section M: Brambridge to Otterbourne Water Supply Works	River Itchen SAC Bow Lake NVZ Hampshire Chalk NVZ Hamble Estuary Eutrophic NVZ River Itchen (Hampshire) UWTDPA Itchen DrWPA (surface) East Hants Chalk DrWPA

Assessment of potential mechanisms for impact

7.3.8 The NSN sites (Solent Maritime SAC, Chichester and Langstone Harbours SPA/Ramsar and River Itchen SAC and River Mean SAC compensatory habitat), are located within 2km of the Pipeline. WER compliance assessments require the consideration of the potential effects on quality elements (hydromorphological, physico-chemical, chemical and biological), many of which support ecological interest features for which the NSN Protected Areas are designated. The HRA (Habitats Regulations Assessment – Stage 2 Appropriate Assessment and Marine Conservation Zone – Stage 1 Assessment (Document reference 5.2, DCO Volume 5)) therefore builds on the output of WER compliance assessments to assess the potential effects on designated site interest features. To avoid duplication with the HRA, impacts on the designated site interest features themselves are not considered in this WER compliance assessment and instead are covered in the HRA (Habitats Regulations Assessment – Stage 2 Appropriate Assessment and

Marine Conservation Zone – Stage 1 Assessment (Document reference 5.2, DCO Volume 5)).

7.3.9 The following Protected Areas not related to NSN sites are located within 2km of the activities:

1. NVZs: Chichester, Langstone and Portsmouth Harbours Eutrophic NVZ, Fareham NVZ (groundwater), Hamble Estuary Eutrophic NVZ, Upper Hamble NVZ, Bow Lake NVZ, Hampshire Chalk NVZ
2. UWTDPAs: Langstone Harbour UWTDPA, Portsmouth Harbour UWTDPA, Hamble Estuary UWTDPA, River Hamble UWTDPA, River Itchen UWTDPA
3. Shellfish Waters: Langstone Harbour Shellfish Water, Chichester Harbour (Emsworth Channel) Shellfish Water
4. DrWPAs: Itchen DrWPA (surface), East Hants Chalk DrWPA

7.3.10 The NVZs and UWTDPAs listed in paragraph 7.3.9 are designated to ensure that inputs of nutrients, chemicals and wastewater-related pathogens are controlled. Wastewater generated in construction compounds, for example via welfare facilities, could potentially release nitrates and other substances if released untreated to the water environment. However, all wastewater generated during construction and operation would be contained and adequately treated (alongside the securing of permits if required) to ensure that the Proposed Development activities would not result in direct nutrient inputs (see section 3.2). Note that any changes in nutrient loading are assessed in detail in ES Appendix 19.7 Nutrient Assessment, Volume II, (Document reference 6.2, DCO Volume 6).

7.3.11 The Langstone Harbour and Chichester Harbour (Emsworth Channel) Shellfish Waters are designated to protect water quality in areas that support economically significant aquatic species. As described in Table 7-3, the Pipelines would be constructed using a combination of trenched open-cut and trenchless construction methods. A range of measures have been embedded into the Outline CEMP (Document reference 7.1, DCO Volume 7) to avoid or reduce environmental effects during construction (as summarised in section 3.2 of this report). Adverse impacts on the Shellfish Waters would not therefore occur during construction. There is no pathway for effect associated with the presence of the new infrastructure on the surface water bodies; any mechanisms for impact during operational maintenance would be managed through the OEMP (Document reference 7.7, DCO Volume 7).

7.3.12 The Itchen and East Hants Chalk DrWPAs are intended to protect the quality of drinking water from the River Itchen and the connected chalk aquifer. As described in Table 7-3, the trenchless construction of the Pipelines would require subsurface excavation that could affect the underlying aquifer. However, the primary and tertiary mitigation measures described in section 3.2 of this report (including the adoption of best practice construction measures set out in the Outline CEMP, (Document reference 7.1, DCO Volume 7), mean that groundwater quality would not be affected. The operational pipelines are not considered to result in any adverse impacts on groundwater quality.

7.3.13 The Protected Areas listed in Table 7-6 are therefore scoped out of Stage 3: Impact Assessment (noting that impacts on NSN Protected Areas are not considered in this WER compliance assessment and instead are covered in the HRA (Habitats Regulations Assessment – Stage 2 Appropriate Assessment and Marine

Conservation Zone – Stage 1 Assessment (Document reference 5.2, DCO Volume 5)).

Stage 2 summary

7.3.14 Stage 2 concludes that the potential effects associated with activities for this component during construction and operation would be managed via the primary and tertiary mitigation measures described in section 3.2.

7.3.15 This means that this component would not result in deterioration in the status of any water body quality elements or associated Protected Areas and would not reduce the effectiveness of RBMP mitigation measures or prevent them being implemented in the future. As a result, the component would not prevent any improvements in water body status being achieved in the future.

7.3.16 This component is therefore scoped out of Stage 3: Impact Assessment and is considered to be compliant with the requirements of the WER.

8 Use of Havant Thicket Reservoir for the storage of recycled water

8.1 Component description

8.1.1 Havant Thicket Reservoir is a development being delivered by Portsmouth Water, which received planning permission in October 2021 (Havant Borough Council (HBC) planning application ref. APP/20/00990 and East Hampshire District Council planning application ref. 51680/001). The planning permission for Havant Thicket Reservoir has been amended by HBC planning application ref. APP/23/00979 and APP/24/00313.

8.1.2 The WRP site would receive treated wastewater from Budds Farm WTW. Within the WRP site, the treated wastewater would be pumped through two filtering processes. The first of these, micro-filtration, is to remove remaining impurities that could block the membranes during reverse osmosis. The reverse osmosis process removes dissolved salts, impurities, bacteria and pharmaceuticals. The next stage within the water recycling process would be the advanced oxidation process involving the use of ultraviolet light and hydrogen peroxide to break down any remaining impurities. To ensure the water is stable for onward pumping and blending, minerals such as calcium and magnesium salts removed during the earlier stages of treatment would be added back in.

8.1.3 The water recycling process would reduce the phosphorus content of the recycled water to levels determined by the EA, and this would be subject to an environmental permit. Phosphorus would be removed using membranes within the WRP site.

8.1.4 Following the transfer of recycled water from the WRP site, the recycled water would be combined with water contained within Havant Thicket Reservoir (comprised of spring water and a limited amount of natural surface water from the upper Riders Lane Stream catchment). The Proposed Development would use Havant Thicket Reservoir for the storage of recycled water, before abstraction and transfer to Otterbourne WSW.

8.1.5 Given that Havant Thicket Reservoir has not yet been constructed but will be in place before operation of the Proposed Development commences, this assessment assumes that it will be an artificial lake water body in its own right and therefore screening and scoping have been undertaken on the basis of quality elements associated with this type of water body. This would require Good Status to be achieved for chemical and physico-chemical quality elements, but would permit an alternative target (i.e., Good Potential) to be achieved for hydromorphological and biological quality elements.

8.2 Stage 1: Screening

Identification of activities

8.2.1 The component has been separated into activities in line with the requirements of the guidance produced by the EA [3] and Planning Inspectorate [2]. These activities are listed in Table 8-1. Note there are no construction activities proposed for Havant Thicket Reservoir as it will be constructed via the separate consent

obtained by Portsmouth Water and will be in place prior to operation of the Proposed Development.

Table 8-1 Summary of activities for the 'Use of Havant Thicket Reservoir for the storage of recycled water'

Reference number	Activity	Sub activities included
Operation		
O1	Use of Havant Thicket for the storage of recycled water	Includes the release of treated water from the WRP into Havant Thicket Reservoir and releases of water from the reservoir as compensation flows into downstream watercourses.

Water body identification

8.2.2 ES Appendix 19.2 Figure 10 Havant Thicket Reservoir against water body boundaries, Volume III, (Document reference 6.3, DCO Volume 6) and ES Appendix 19.2 Figure 2 Order Limits and groundwater body boundaries, Volume III, (Document reference 6.3, DCO Volume 6), show the Havant Thicket Reservoir and water bodies. A screening exercise has been undertaken to identify which of the water bodies have the potential to be impacted by the activity with water bodies being identified on the basis of hydrological connectivity to the proposed activity (section 2.2).

8.2.3 In addition to water body mapping, potential hydrological connectivity has been determined with reference to Main Rivers, Ordinary Watercourses and surface water flow routes that may not be shown on published mapping (identified using EA flood mapping). This process therefore considers the water bodies in whose catchments the activities are located, and where relevant, connected water bodies upstream and downstream. Full details of the geology, hydrogeology and surface water details of the site are provided in ES Chapter 19 Water environment, Volume I (Document reference 6.1, DCO Volume 6).

8.2.4 The results of the screening exercise are included in Table 8-2.This demonstrates that the use of Havant Thicket Reservoir for storage of recycled water could potentially have an impact on the following water bodies:

1. Havant Thicket Reservoir (not yet classified as a water body and hence there is no water body ID available)
2. Hermitage Stream (GB107042016370)
3. Langstone Harbour (GB580705130000) and Langstone Oysterbeds (GB510070073000)

8.2.5 Annex A provides summary data for all water bodies relevant to this WER compliance assessment with the exception of the Havant Thicket Reservoir, which has not yet been designated as a water body. However, it is assumed that the Environment Agency will designate Havant Thicket Reservoir as a lake water body.

Table 8-2 Results of screening assessment for the use of Havant Thicket Reservoir for storage of recycled water

Water body name and ID number	Type	Description	Screened in?	Justification
Havant Thicket Reservoir	Lake (assumed)	Assumed to be designated as an AWB. Assumed to be at Good Ecological Potential on account of the habitat creation measures proposed as part of the design.	Yes	Recycled water would be released into this water body.
Hermitage Stream (GB107042016370)	River	This water body is designated as a HMWB and is at Moderate Ecological Potential although note that fish is classified as Poor. Elements at Moderate Potential are invertebrates, phosphate, pH, supporting elements (surface water) and mitigation measures assessment: 'Moderate or less'. Chemical Status in 2019 was assessed as Fail due to mercury and its compounds and PBDE. In 2022 Chemical Status is listed as not requiring assessment. RNAG and quality element affected: • Physical modification (fish, invertebrates, pH, mitigation measures assessment) • Point source pollution: (invertebrates, phosphate, pH) • Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) Objectives: • Good Ecological Potential by 2027 • Good Chemical Status by 2063	Yes	Releases from the reservoir would be made during operation into this water body. The headwaters of Riders Lane Stream, a tributary of Hermitage Stream and part of this water body, would be captured once the reservoir has been constructed. The flow regime of Riders Lane Stream would therefore be entirely controlled by compensation flows from the reservoir; it is assumed that these flows would be similar to the present flow regime [9].
Lavant (Hants) (GB107042016420)	River	At Poor Ecological Status due to fish. In 2019 Chemical Status listed as Fail due to mercury and its compounds and PBDE. In 2022	No	A small part of Havant Thicket Reservoir overlaps with an area that currently forms part this water body

Water body name and ID number	Type	Description	Screened in?	Justification
		Chemical Status is listed as not requiring assessment. RNAG and quality element affected: • Physical modification (fish) • Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) Objectives: • Good Ecological Potential by 2027 • Good Chemical Status by 2063		catchment. However, there would be no releases from Havant Thicket Reservoir into this water body. There is therefore no mechanism for this component to affect the water body.
Langstone Harbour (GB580705130000)	Transitional	This water body is designated as a HMWB and is at Moderate Overall Status due to biological quality elements angiosperms and saltmarsh. Supporting elements assessment (surface water) and mitigation measures assessment are also Moderate. Chemical Status in 2019 was assessed as Fail due to mercury and its compounds and PBDE. In 2022 Chemical Status is listed as not requiring assessment. RNAG and quality element affected: • Physical modification (angiosperms, mitigation measures assessment) • Unknown (pending investigation) (mercury and Its compounds) • Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) Objectives: • Good Ecological Potential by 2027	Yes	Releases from the reservoir into Hermitage Stream would drain into Langstone Harbour water body.

Water body name and ID number	Type	Description	Screened in?	Justification
		• Good Chemical Status by 2063		
Langstone Oysterbeds (GB510070073000)	Transitional	This water body is designated as an AWB and is at Good Ecological Potential although note supporting elements (surface water) are at Moderate. Chemical Status in 2019 was assessed as Fail due to mercury and its compounds and PBDE. In 2022 Chemical Status was listed as not requiring assessment. RNAG and quality element affected: • Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) Objectives: • Good Ecological Potential by 2015 • Good Chemical Status by 2063	Yes	Releases from the reservoir into Hermitage Stream would drain into Langstone Harbour water body – Langstone Oysterbeds is hydrologically connected to Langstone Harbour.
East Hants Lambeth Group (GB40702G500800)	Groundwater	Good Overall Status	No	There would be no releases from Havant Thicket Reservoir into this water body, and therefore no pathway for effect.

8.3 Stage 2: Scoping

Introduction

8.3.1 This section presents the results of the scoping stage undertaken on the water bodies identified in Table 8-2.

8.3.2 Scoping examines the potential for the activities identified to impact water bodies and their quality elements, any improvement and mitigation measures identified by the EA, and any associated Protected Areas. The results of the scoping stage determine which water bodies and quality elements require further assessment as part of the Stage 3: Impact Assessment.

Impacts of activities on water body quality elements

Assessment of potential mechanisms for impact

8.3.3 The results of the scoping assessment are summarised in Table 8-3.

8.3.4 Table 8-3 demonstrates that the activities could potentially impact on the physico-chemistry and, by extension, the biology of Havant Thicket Reservoir, Hermitage Stream (GB107042016370) and Langstone Harbour (GB580705130000) (and Langstone Oysterbeds (GB510070073000)). These water bodies and the activity are therefore scoped into Stage 3: Impact Assessment.

Table 8-3 Activities with the potential to affect water body quality elements and status for the Use of Havant Thicket Reservoir for recycled water

Activity	Water body	Quality element scoping results
Operation		
O1	Havant Thicket Reservoir	**Hydromorphology:** The release of recycled water into the reservoir would use Portsmouth Water's infrastructure between Bedhampton Springs and Havant Thicket Reservoir (see ES Chapter 3 Description of the Proposed Development, Volume I, (Document reference 6.1, DCO Volume 6)). All releases would be undertaken at a controlled rate to avoid scour within the reservoir, and operated in the same way as during the initial filling and operational phases (i.e., the release protocol would remain unchanged from the period prior to the introduction of water from the WRP). These measures are considered to be sufficient to avoid a pathway for effect on the water body. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: Recycled water site would be treated to a high standard using a Full Advanced Treatment process (incorporating microfiltration/ultrafiltration, reverse osmosis, an advanced oxidation process using ultraviolet/hydrogen peroxide, granular activated carbon adsorption and remineralisation) and would not contain chemical or biological contaminants. It is possible, however, that the basic chemistry of recycled water would differ slightly to that from the chalk aquifer, surface watercourses or rainfall. Once released, the recycled water would mix with water from the chalk aquifer (pumped into the reservoir by Portsmouth Water) and smaller volumes derived from the headwaters of Riders Lane Stream (which would be intercepted by the reservoir) and rainfall. The chemistry of water from the different sources is likely to be slightly different (e.g. with regards to basic chemical parameters such as temperature, pH, salinity, DO, BOD, dissolved and total organic carbon, and concentrations of nutrients such as phosphorus and nitrogen). Any changes to water chemistry could potentially result in corresponding changes to trophic status and the plant and invertebrate communities (see ES Chapter 8 Terrestrial and freshwater biodiversity, Volume I (Document reference 6.1, DCO Volume 6)). The physico-chemical quality elements for Havant Thicket Reservoir are therefore scoped in to the assessment.
		Biology: As described above, it is possible that the physico-chemistry of the recycled water is different to that of the receiving water in the reservoir, which could impact the biology in the reservoir. Therefore, these quality elements are scoped in. As described in section 3.2, the INNS Biosecurity Plan (Document reference 7.10, DCO Volume 7) sets out measures to mitigate potential risks associated with the management of INNS during operation. The

Activity	Water body	Quality element scoping results
		proposed activities would not therefore result in deterioration in water body status with respect to INNS pressures and would not prevent the environmental objectives of the WER being achieved now or in the future. INNS risks are therefore scoped out.
	Hermitage Stream (GB107042016370)	**Hydromorphology:** The release of recycled water into Havant Thicket Reservoir would not result in any changes to the volume or frequency of compensation flow releases from the reservoir into the Hermitage Stream catchment via Riders Lane Stream. Furthermore, the release of recycled water into the reservoir would not affect release velocities at the outlet into Riders Lane Stream. There is therefore no pathway for effect on the hydromorphology of the water body. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: There is the possibility that the recycled water released into Hermitage Stream as compensation flow is different in terms of physico-chemistry. These quality elements are therefore scoped in.
		Biology: There is the possibility that the recycled water released into Hermitage Stream as compensation flow is different in terms of physico-chemistry which could impact the biology in the watercourse. These quality elements are therefore scoped in.
	Langstone Harbour (GB580705130000) Langstone Oysterbeds (GB510070073000)	**Hydromorphology:** The release of recycled water into Havant Thicket Reservoir would not result in any changes to the volume, frequency or velocity of releases of compensation flows from the reservoir into Riders Lane Stream, Hermitage Stream and Langstone Harbour/Langstone Oysterbeds. There is therefore no pathway for effect on the hydromorphology of the water body. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: There is the possibility that the recycled water released as compensation flow into Hermitage Stream which is upstream of Langstone Harbour/Langstone Oysterbeds is different in terms of physico-chemistry. These quality elements are therefore scoped in.
		Biology: There is the possibility that the recycled water released as compensation flow into Hermitage Stream which is upstream of Langstone Harbour/Langstone Oysterbeds is different in terms of physico-chemistry which could impact the biology in the watercourse. These quality elements are therefore scoped in.

Impacts of Proposed Development activities on River Basin Management Plan improvement and mitigation measures

River Basin Management Plan mitigation measures applicable to each water body

8.3.5 There are a range of RBMP mitigation measures for Hermitage Stream (GB107042016370) and Langstone Harbour (GB580705130000) (Table 8-4). There are, however, no RBMP mitigation measures for Langstone Oysterbeds (GB510070073000).

8.3.6 Given the Havant Thicket Reservoir has not yet been classified as a water body in accordance with the WER, there are no mitigation measures identified in the RBMP for implementation within the water body itself against which an assessment can be made.

8.3.7 However, Portsmouth Water has agreed to implement a package of river channel improvement measures in the Hermitage Stream catchment to mitigate the impacts of constructing Havant Thicket Reservoir [10]. This package, which has been agreed with the EA as part of the Regulation 19 derogation process, includes a range of geomorphological and habitat improvements in Hermitage Stream, and its tributaries Riders Lane Stream and Park Lane Stream. The combined length of these improvements would be approximately 5.48km.

8.3.8 These measures will be designed to deliver considerable improvements to the geomorphology of the watercourse and to the quality of habitats for fish, aquatic invertebrates and macrophyte communities, and are intended to address pressures associated with physical modifications and changes to the hydrological regime associated with construction of the reservoir. They are not intended to address the water quality pressures that affect the water body, where point source pollution (primarily misconnections) is adversely affecting pH and phosphate concentrations.

8.3.9 Although these measures are considered to be consistent with the measures already identified in the RBMP, they are not themselves defined in the RBMP and are considered separately in Table 8-4.

Table 8-4 Potential Impacts of the Use of Havant Thicket Reservoir for storage of recycled water on River Basin Management Plan mitigation measures

RBMP mitigation measure	Status	Potential impact
Hermitage Stream (GB107042016370)		
Re-opening of covered culverts	In place	There are no direct works within the water body, therefore the proposed activity would not reduce the effectiveness of the measure that is already in place to reduce the impacts associated with culverts. Furthermore, the lack of direct works within the water body means that the proposed activity
Activity to create new habitat where it did not exist before	Not in place	
Bed of culvert altered to allow decreased flow conditions and to allow longitudinal connectivity of both biota and sediments	Not in place	
Implement a downstream flow regime that does not impact the ecology (applies to rivers and reservoirs)	Not in place	

RBMP mitigation measure	Status	Potential impact
Installation of structures designed to facilitate and improve the passage of migratory (e.g. salmon and sea trout) and non-migratory fish where structures cannot be removed	Not in place	would not prevent measures that are not currently in place being implemented in the future.
Leaving habitat or parts of natural habitat while undertaking operations or maintenance in a water body	Not in place	
Raise public awareness of the impacts and responsibilities of landowners	Not in place	
Rehabilitation of degraded bankside habitats to improve their physical structure and the condition of the riparian zone. Bank rehabilitation includes bank reprofiling, the creation of aquatic ledges and removal of hard bank protection	Not in place	
Removal of hard engineering structures that modify the natural flow and sediment regime, including weirs, locks, floodgates, sluices, and erosion control structures	Not in place	
Removal or re-location of set-back embankments	Not in place	
Removal/softening of hard engineering structures that modify natural bank profile	Not in place	
Restoration of lateral connectivity with the water bodies surrounding floodplain e.g. flood plain spillways	Not in place	
Restore or increase in-channel morphological diversity e.g. riffle and pool creation and bar creation	Not in place	
Retro-fitting existing structures to accommodate niche habitats, as opposed to more substantial structural modifications that would be likely to deliver greater hydromorphological change but may not be possible given the use	Not in place	
Structural changes to locks, sluices, weirs, beach control	Not in place	
Regulation 19 measures to deliver geomorphological and habitat improvements in Hermitage Stream, Riders Lane Stream and Park Lane Stream and fish passage easement measures on Hermitage Stream (to be implemented by Portsmouth Water)	Not in place (although likely to be in place when Havant Thicket Reservoir is operational)	The proposed activities would not directly interact with Hermitage Stream, and therefore the proposed activities would not prevent these measures being implemented in the future. Permitted operational releases associated with management of water levels in the reservoir and

RBMP mitigation measure	Status	Potential impact
		the maintenance of downstream flows in Riders Lane Stream and Hermitage Stream would not be affected by the Proposed Development, and therefore the activities would not prevent these measures being implemented in the future.
Langstone Harbour (GB580705130000)		
Managed realignment of flood defence assets	Not in Place	There are no direct works within this water body related to the storage of recycled water in Havant Thicket Reservoir therefore the proposed activity would not impact on these measures being put in place in the future. Any operational releases associated with the management of water levels in the reservoir (which would be controlled by the reservoir operator under the terms of an environmental permit agreed with the EA) would not impact on these measures to be implemented in the future. Furthermore, any modelled changes in the quality of water in the reservoir and associated releases into the river network would not affect these physical habitat improvement measures (note that the model results are described in section 8.4).
Activity to create new habitat where it did not exist before	Not in Place	
Removal/softening of hard engineering structures that modify natural bank profile	Not in Place	
Retro-fitting existing structures to accommodate niche habitats, as opposed to more substantial structural modifications that would be likely to deliver greater hydromorphological change but may not be possible given the use	Not in Place	
Leaving habitat or parts of natural habitat while undertaking operations or maintenance in a water body	Not in Place	

Assessment of potential mechanisms for impact

8.3.10 Table 8-4 presents an assessment of potential impacts of the activities associated with this component on RBMP mitigation measures. This demonstrates that the proposed activities would not counteract or adversely affect the delivery of the RBMP mitigation measures that are already in place and would not prevent the future implementation of the RBMP mitigation measures that are not yet in place (including those measures proposed by Portsmouth Water to mitigate for the construction of Havant Thicket Reservoir in the Hermitage Stream catchment). RBMP mitigation measures (either in place or not in place) do not, therefore, require assessment in Stage 3: Impact Assessment.

Impacts of the activities on Protected Areas

Protected Areas

8.3.11 The Clearing the Waters for All guidance [3] recommends further assessment of the potential impacts on any Protected Areas that are within 2km of a new project. Protected Areas within 2km are listed in Table 8-5 and shown in ES Appendix 19.2 Figure 11 Havant Thicket Reservoir and Protected Areas within a 2km buffer, Volume III, (Document reference 6.3, DCO Volume 6). These are listed in Table 8-5.

Table 8-5 Protected Areas within 2km

Protected areas within 2km
Chichester and Langstone Harbours SPA/Ramsar
Solent Maritime SAC
Chichester, Langstone and Portsmouth Harbours Eutrophic NVZ
Langstone Harbour Shellfish Water
Chichester Harbour (Emsworth Channel) Shellfish Water
Langstone Harbour UWTDPA

Assessment of potential mechanisms for impact

8.3.12 Several NSN sites (Solent Maritime SAC and Chichester and Langstone Harbours SPA/Ramsar) are located within 2km. WER compliance assessments require the consideration of the potential effects on quality elements (hydromorphological, physico-chemical, chemical and biological), many of which support ecological interest features for which the NSN Protected Areas are designated. The HRA (Habitats Regulations Assessment – Stage 2 Appropriate Assessment and Marine Conservation Zone – Stage 1 Assessment (Document reference 5.2, DCO Volume 5)) therefore builds on the output of WER compliance assessments to assess the potential effects on designated site interest features. To avoid duplication with the HRA, impacts on the designated site interest features themselves are not considered in this WER compliance assessment and instead are covered in the HRA (Habitats Regulations Assessment – Stage 2 Appropriate Assessment and Marine Conservation Zone – Stage 1 Assessment (Document reference 5.2, DCO Volume 5)).

8.3.13 The following Protected Areas, not related to NSN sites, are located within 2km of the proposed activities:

1. Chichester, Langstone and Portsmouth Harbours Eutrophic NVZ
2. Langstone Harbour UWTDPA
3. Langstone Harbour Shellfish Water
4. Chichester Harbour and (Emsworth Channel) Shellfish Water

8.3.14 Given that water could be released to the Hermitage Stream, there is the potential for a pathway for effect on downstream Protected Areas which require controls on nutrient inputs. As a result, the four Protected Areas listed in paragraph 8.3.13 are scoped into Stage 3: Impact Assessment. Note that any changes in nutrient loading

are assessed in detail in ES Appendix 19.7 Nutrient Assessment, Volume II, (Document reference 6.2, DCO Volume 6).

Stage 2 summary

8.3.15 Stage 2 concludes that Activity O1 in Havant Thicket Reservoir (water body ID number not available), Hermitage Stream (GB107042016370) and Langstone Harbour (GB580705130000)/Langstone Oysterbeds (GB510070073000), in addition to Protected Areas (Chichester, Langstone and Portsmouth Harbours Eutrophic NVZ, Langstone Harbour UWTDPA, Langstone Harbour Shellfish Water and Chichester Harbour (Emsworth Channel) Shellfish Water) have been scoped into Stage 3: Impact Assessment.

8.3.16 The potential effects associated with all other activities for this component during construction and operation would be managed via the primary and tertiary mitigation measures described in section 3.2, and are therefore scoped out of Stage 3: Impact Assessment.

8.4 Stage 3: Impact Assessment

Introduction

8.4.1 This section presents the results of impact assessment on the scoped in water bodies (Havant Thicket Reservoir, Hermitage Stream and Langstone Harbour) and Protected Areas (Chichester, Langstone and Portsmouth Harbours Eutrophic NVZ, Langstone Harbour UWTDPA, Langstone Harbour Shellfish Water and Chichester Harbour (Emsworth Channel) Shellfish Water).

8.4.2 The Stage 3: Impact assessment determines whether the component and associated activities would cause a deterioration of water body status, and whether such deterioration would have a non-temporary effect on the status of one or more quality elements at a water body level.

8.4.3 The results of water quality modelling undertaken to identify potential effects have been used for this impact assessment. These are presented in Appendix 19.11 Havant Thicket Reservoir water quality modelling, Volume II (Document reference 6.2, DCO Volume 6) and ES Appendix 19.6 Havant Thicket Reservoir Compensatory Flows water quality modelling, Volume II, (Document reference 6.2, DCO Volume 6).

Use of Havant Thicket for the storage of recycled water

Approach to assessment

8.4.4 Modelling of reservoir water quality has been conducted jointly by Portsmouth Water and the Applicant using the Aquatic Ecosystem Model – Three Dimensional (AEM3D) which simulates the temporal behaviour of stratified water bodies. The model simulates the velocity, temperature and salinity of surface waters that are subjected to environmental and anthropogenic (human-caused) forces such as wind, surface heating and cooling, inflows, and withdrawals (see ES Appendix 19.11 Havant Thicket Reservoir water quality modelling, Volume II, (Document reference 6.2, DCO Volume 6) for further information).

Modelled parameters

8.4.5 The model considered a range of common water quality parameters at depth intervals for which water quality standards have been established for lake water bodies under the WFD Directions (as stated in section 8.2, it is assumed that the Environment Agency will designate Havant Thicket Reservoir as an artificial lake water body once it has been constructed, filled and has stabilised). These include:

1. Basic water quality parameters, including temperature, pH, alkalinity, Dissolved Oxygen (DO) and Biochemical Oxygen Demand (BOD).
2. Nutrients, including Total Phosphorus (TP), and Dissolved Inorganic Nitrogen (DIN).
3. Other parameters, including Dissolved Organic Carbon (DOC), Chlorophyll-a, Total Suspended Solids (TSS), Total Iron and Total Manganese.

8.4.6 Initial concentrations of these parameters were estimated using measured data, (e.g. inputs from surface watercourses and long-term groundwater quality data from Portsmouth Water) and initial estimates of the quality of recycled water following treatment at the WRP site (ES Appendix 19.11 Havant Thicket Reservoir water quality modelling, Volume II, (Document reference 6.2, DCO Volume 6)).

Model scenarios

8.4.7 As described in ES Appendix 19.11 Havant Thicket Reservoir water quality modelling, Volume II, (Document reference 6.2, DCO Volume 6), water quality modelling has been undertaken to predict changes in water quality resulting from different periods of use during the operation of the reservoir:

1. The initial reservoir filling phase (October 2029 – March 2032) with water inputs from Bedhampton and Havant Springs over three winter periods.
2. The period of reservoir operation during which water levels are maintained through the use of spring water inputs from Bedhampton and Havant Springs only (April 2032 – September 2032). This is referred to as the classic operation scenario in this assessment and the supporting appendices.
3. The period of operation following inclusion of recycled water inputs as a result of the Proposed Development (October 2032 – December 2041). This is referred to as the post-WRP operation scenario in this assessment and the supporting appendices. This period is predicted to include some stabilisation effects, i.e. the recycled water would be introduced before the reservoir has fully stabilised.

8.4.8 The model tested several operational conditions for the reservoir. These conditions included ‘baseline’ operational conditions (scenario 1B) that considered how water quality is likely to develop during the three time periods described in paragraph 8.4.7 under the most likely operational conditions for the reservoir. Water quality has been modelled for the larger and shallower north basin, and a deeper south basin. The results of this scenario for the three operational periods described in paragraph 8.4.7 are considered in this assessment.

Potential impacts on water body status

Chemistry and physico-chemistry

8.4.9 The results of the water quality modelling for Havant Thicket Reservoir presented in ES Appendix 19.11 Havant Thicket Reservoir water quality modelling, Volume II, (Document reference 6.2, DCO Volume 6) indicate that negligible change is predicted to occur in the Havant Thicket Reservoir between the classic and post-WRP operation scenarios.

8.4.10 The modelling results presented in ES Appendix 19.11 Havant Thicket Reservoir water quality modelling, Volume II (Document reference 6.2, DCO Volume 6) have been compared to the appropriate physico-chemical status classification thresholds from the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015 ('the WFD Directions 2015') (Table 8-6) to determine whether water body status is likely to change throughout the operational lifetime of the Project.

8.4.11 The outputs of this analysis are presented in full in ES Appendix 19.11 Havant Thicket Reservoir water quality modelling, Volume II (Document reference 6.2, DCO Volume 6) and summarised in Table 8-7 and Figure 8-1.

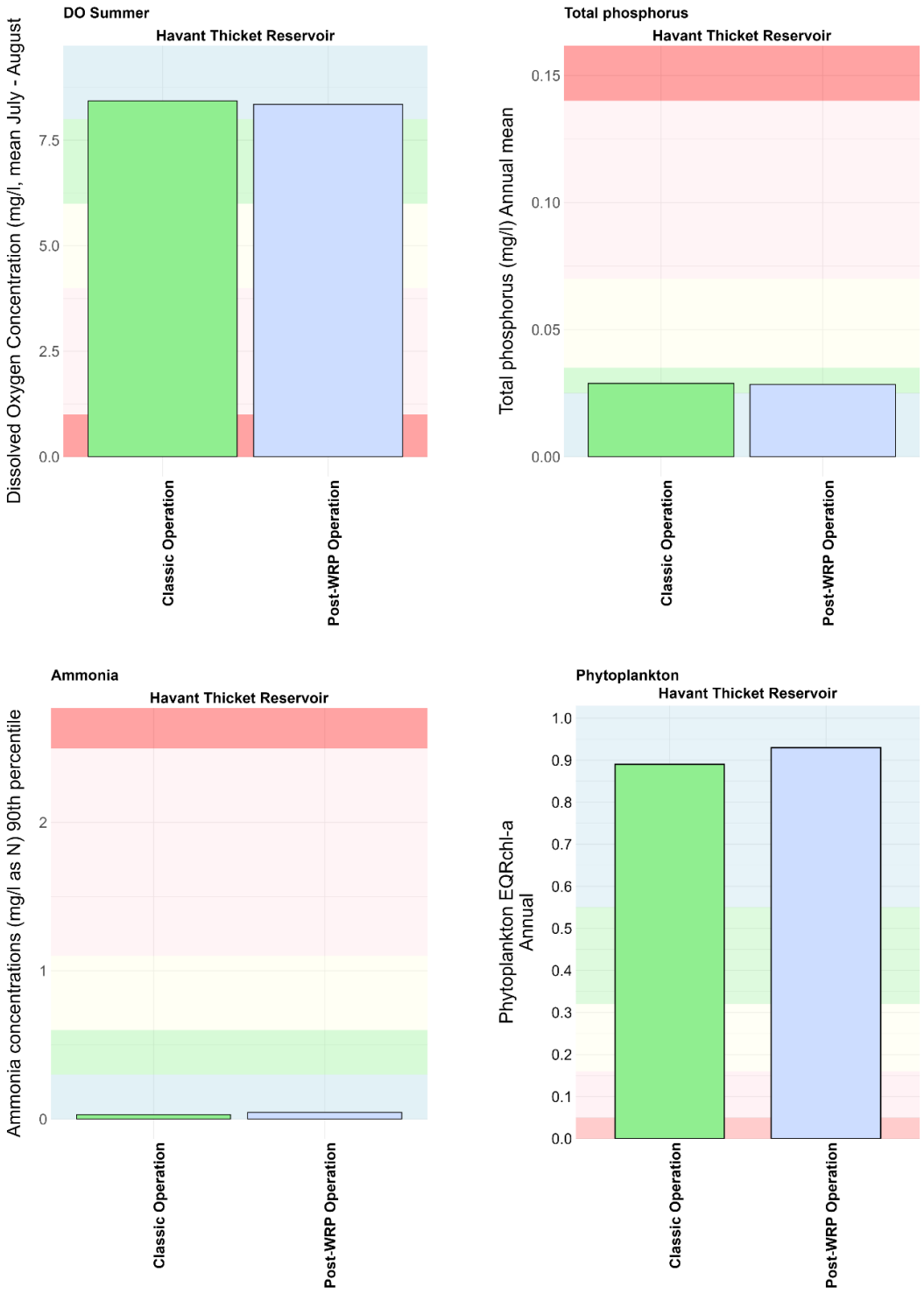
Table 8-6 Physico-chemical status thresholds for lake water bodies from the WFD Directions 2015 and UKTAG (2014)

Parameter	High	Good	Moderate	Poor	Bad
Total Phosphorus (mg/l) Annual mean	<0.025	0.025 - 0.035	0.035 - 0.070	0.070 - 0.140	>0.140
Total Ammonia (mg/l as N) 90th percentile	<0.3	0.3 - 0.6	6 - 1.1	1.1 - 2.5	>2.5
Dissolved Oxygen (mg/l) Mean July-August	>8	6 - 8	4 - 6	1 - 4	<1
Phytoplankton EQR$_{Chl-a}$ Annual	>0.55	0.32 - 0.55	0.32 - 0.16	0.16 - 0.05	<0.05

Table 8-7 Predicted physico-chemical status in Havant Thicket Reservoir

Parameter	Classic operation scenario	Post-WRP operation scenario
Total Phosphorus (mg/l) Annual mean	**0.029**	**0.028**
Total Ammonia (mg/l as N) 90th percentile	**0.049**	**0.056**
Dissolved Oxygen (mg/l) Mean July-August	**8.43**	**8.35**
Phytoplankton EQR$_{Chl-a}$ Annual	**0.89**	**0.93**

Figure 8-1 Modelled water quality in Havant Thicket Reservoir compared to physico-chemical status thresholds from the WFD Directions 2015: DO, Total Phosphorus, Total Ammonia and phytoplankton



Legend (horizontal background shading behind vertical bars)

Blue: High status

Green: Good status

Yellow: Moderate status

Pink: Poor status

Red: Bad status

8.4.12 Table 8-7 and Figure 8-1 indicate that there would be very small variations in the physico-chemical water body status metrics between the classic and post-WRP operation scenarios. However, these variations are in all cases insufficient to result in any changes to the status classification of dissolved oxygen, total phosphorus, ammonia or $EQR_{Chl-a.}$ The onset of the Project would not therefore result in deterioration in the predicted future status of the Havant Thicket Reservoir water body.

Biology

8.4.13 The reservoir modelling shown in ES Appendix 19.11 Havant Thicket Reservoir water quality modelling, Volume II, (Document reference 6.2, DCO Volume 6) takes account of embedded measures to minimise the concentration of nutrients in the recycled water (including membranes to remove phosphorus; section 3.2) and includes process representations of the carbon (C), nitrogen (N), phosphorus (P) and DO cycles, inorganic suspended solids behaviour, and phytoplankton and metals dynamics.

8.4.14 As described above, EQR_{Chl-a} is forecast to be at high status and therefore the reservoir will not be eutrophic and instead will remain mesotrophic. Under persistent mesotrophic conditions, the reservoir has the potential to support diverse communities of aquatic plants and invertebrates that prefer clear, well-oxygenated water and have a low tolerance of poor water quality. The reservoir fish assemblage could potentially evolve under mesotrophic conditions to include minor and coarse fish, including native species such as stickleback, tench, roach and perch. Further information is provided in ES Chapter 8 Terrestrial and freshwater biodiversity, Volume I (Document reference 6.1, DCO Volume 6).

8.4.15 The design of the reservoir also includes night-time (1800-0600) bubbler operations from April-August (seasonal stratification period). Modelling shows that operation of the bubbler is an effective 'in-reservoir' control measure to maintain a well-mixed and well-oxygenated water column with low bottom water concentrations of dissolved metals, and dissolved inorganic and organic matter.

8.4.16 The incorporation of measures to reduce the phosphorus content of recycled water in the design of the WRP means that a change in water body status does not occur. Operation of the Proposed Development would not, therefore, result in a deterioration in the biological status of the reservoir.

Alternative reservoir fill scenario

8.4.17 As described in paragraph 8.4.9, the assessment of operational water quality impacts considers a classic operation scenario (i.e. the period of reservoir operation prior to introduction of recycled water from the WRP) and a post-WRP operation scenario (i.e. the period of reservoir operation following introduction of recycled water from the WRP). Further information on water quality modelling and associated scenarios is presented in ES Appendix 19.11 Havant Thicket Reservoir water quality modelling, Volume II, (Document Reference 6.2, Volume 6) and ES Appendix 19.6 Havant Thicket Reservoir Compensatory Flows water quality modelling, Volume II, (Document Reference 6.2, Volume 6).

8.4.18 An additional scenario has also been considered, where the initial classic operation scenario does not occur (for example, in the event of an extended construction

period for Havant Thicket Reservoir) and the filling of the reservoir is achieved through a combination of both spring water and recycled water. This scenario is referred to as the 'alternative reservoir fill' scenario.

8.4.19 In order to determine whether the 'alternative reservoir fill' scenario is likely to result in a change to predicted water quality in Havant Thicket Reservoir or in compensatory flows, water quality predictions for the period following reservoir refill after a major drought with significant drawdown in water levels were compared to those from the corresponding time period from the original assessment scenarios. Specifically, results from the period between the beginning of November 2040 and the end of December 2041 were compared for the 'alternative reservoir fill' scenario and the post-WRP scenario.

8.4.20 This period was selected because, out of all the model scenarios considered in ES Appendix 19.11 Havant Thicket Reservoir water quality modelling, Volume II, (Document Reference 6.2, Volume 6), it most closely represents the alternative fill scenario (i.e. it comprises filling of the reservoir with spring and recycled water, rather than recycled water being added to the reservoir when it already contains a large proportion of spring water).

8.4.21 Statistical analysis, including a Wilcoxon signed-rank test[1] and a Cohen's d[2] test, was used to compare the two data sets and determine whether there were any significant differences between scenarios.

8.4.22 The results of the statistical analysis for water in the reservoir are described in ES Chapter 8 Terrestrial and freshwater biodiversity, Volume I (Document Reference 6.1, Volume 6). This demonstrates that water quality indicators such as TP and chlorophyll-a would be higher in the 'alternative reservoir fill' scenario than they are for the corresponding period in the post-WRP scenario.

8.4.23 Although TP and chlorophyll-a concentrations are statistically significantly higher in the alternative reservoir fill scenario, they are both still within the range expected for a mesotrophic water body (cf. ES Chapter 8 Terrestrial and freshwater biodiversity, Volume I (Document Reference 6.1, Volume 6). Furthermore, the source water balance would revert to that represented in the post-WRP scenario once the reservoir has been refilled. Any changes to water quality impacts arising from implementation of the 'alternative reservoir fill' scenario are therefore likely to be relatively short-lived, as the enriched water would be flushed from the reservoir within two years, as set out in ES Appendix 19.11 Havant Thicket Reservoir water quality modelling, Volume II (Document Reference 6.2, Volume 6). The 'alternative reservoir fill' scenario is therefore not expected to result in a significant change in reservoir water quality in comparison to the post-WRP scenario in EIA terms.

Additional scenarios: Delays in reservoir completion

8.4.24 It is possible that other alternative reservoir fill scenarios could arise from programme changes, for example, recycled water could be introduced to the reservoir before the period of initial post-fill stabilisation[3] described in ES Appendix

[1] Wilcoxon signed-rank test: a non-parametric statistical procedure used to determine if the median difference between paired samples is significantly different from zero, i.e. tests if one group is significantly higher or lower than the other.

[2] Cohen's d test: a statistical test to quantify the size of effect when comparing two groups of data.

[3] Defined as the initial few years after initial inundation when terrestrial biomass is decomposed or mineralised, resulting in much higher fluxes of organic and inorganic matter than is observed once the reservoir has stabilised.

19.11 Havant Thicket Reservoir water quality modelling, Volume II, (Document Reference 6.2, Volume 6).

8.4.25 While the timing of these source water inputs might change, the quality of the recycled water, spring water and inputs from the hydrological catchment would remain constant. Consequently, reservoir water quality would align with the post-WRP phase of the original operational scenario once the reservoir has stabilised. The analysis presented in paragraph 8.4.23 for the alternative reservoir fill scenario supports this by demonstrating that any changes in 'post-stabilisation' water quality are relatively small.

Release of compensatory flows

Hermitage Stream

Approach to assessment

8.4.26 The modelling described in ES Appendix 19.11 Havant Thicket Reservoir water quality modelling, Volume II, (Document reference 6.2, DCO Volume 6) and summarised above for the use of Havant Thicket Reservoir for the storage of recycled water was focussed on water quality in the reservoir and did not simulate potential effects on downstream water bodies.

8.4.27 The reservoir model did include a predicted quality envelope for the compensatory flows. This was used to define the input parameters for further downstream dispersion modelling to investigate the mixing and dispersion of water released from the reservoir through compensatory flows into downstream water bodies. The dispersion modelling approach is considered conservative for relevant water quality parameters as it assumed that concentrations of each parameter are not subject to chemical degradation or biological uptake processes and are only affected by physical dispersion processes such as dilution. The results of this process are presented in ES Appendix 19.6 Havant Thicket Reservoir Compensatory Flows water quality modelling, Volume II, (Document reference 6.2, DCO Volume 6).

8.4.28 Following completion of the dispersion modelling, additional degradation modelling has also been undertaken to consider the role of chemical and biological processes on a subset of parameters that are considered to be most sensitive to these processes (e.g. DO) (ES Appendix 19.6 Havant Thicket Reservoir Compensatory Flows water quality modelling, Volume II, (Document reference 6.2, DCO Volume 6)).

Modelled parameters

8.4.29 The dispersion model considered a range of water quality parameters included in the reservoir water quality model [11] used to define the physico-chemical status of river and transitional water bodies and therefore have a water body status threshold set out in the WFD Directions. The following parameters have been modelled:

1. Basic water quality parameters, including temperature, pH, alkalinity, DO and BOD.
2. Phosphorus parameters, including TP and PO_4.

3. Nitrogen parameters, including TN, NH_3 and NO_3.
4. The additional degradation modelling focussed on a subset of these parameters, namely DO, BOD, PO_4, NH_4 and NO_3.

Model scenarios

8.4.30 The reservoir modelling has defined concentrations of parameters for the periods prior to and following the introduction of recycled water from the WRP into the reservoir. This allowed two main scenarios to be considered in the downstream compensatory flow modelling:

1. A 'pre-implementation' scenario (referred to as the classic scenario), informed by water quality outputs from the reservoir model during the classic operation phase (April 2032 – September 2032), prior to the input of water from the WRP. This represents a future baseline scenario, against which the impacts of the Proposed Development need to be assessed.
2. The 'post-implementation' scenario (referred to as the post-WRP scenario), informed by water quality outputs from the reservoir model during the operational phase of the Proposed Development (October 2032 – December 2041), following the input of recycled water from the WRP. Note that this scenario reflects the phosphorus removal measures embedded in the scheme design (section 3.2).

8.4.31 In each scenario, water quality inputs have been derived from the reservoir water quality model outputs for the corresponding time period. As a precautionary approach, the classic and post-WRP' scenarios used the maximum values for each parameter as a worst-case, with the exception of DO, where the minimum rather than maximum values were used (reflecting that higher DO concentrations reflect higher water quality).

8.4.32 Water quality in the Hermitage Stream catchment and downstream water bodies is subject to change as a result of natural variations in freshwater flows and tidal patterns, depending upon rainfall events, tidal conditions and seasonality. To represent this, the modelling has considered low and bank-full freshwater flows, two spring-neap tidal cycles and summer and winter water temperatures (which are particularly important with respect to degradation modelling).

Potential impacts on water body status

Chemistry and physico-chemistry

8.4.33 The results of water quality modelling presented in ES Appendix 19.6 Havant Thicket Reservoir Compensatory Flows water quality modelling, Volume II, (Document reference 6.2, DCO Volume 6) are summarised and compared to water body status class boundaries in Table 8-8. The physico-chemical status boundaries for each parameter were calculated according to the methodology set out in the WFD Directions 2015, and are shown in Table 8-9.

Table 8-8 Modelled water quality in Riders Lane Stream and Hermitage Stream compared to physico-chemical status thresholds from the WFD Directions 2015

Parameter	Measured baseline	Classic operation	Post-WRP operation
Riders Lane Stream (sub-catchment of GB107042016370)			
Orthophosphate (mg/l) Annual mean	0.09	0.05	0.05
Ammonia (mg/l as N) 90th percentile	0.62	0.34	0.33
BOD (mg/l) 90th percentile	5.93	4.39	4.39
pH 95th percentile	7.9	8.1	8.1
pH 5th percentile	6.8	7.4	7.3
Hermitage Stream (GB107042016370)			
Orthophosphate (mg/l) Annual mean	0.12	0.09	0.09
Ammonia (mg/l as N) 90th percentile	0.11	0.22	0.22
BOD (mg/l) 90th percentile	4.6	4.5	4.5
pH 95th percentile	9.0	8.6	8.6
pH 5th percentile	7.4	7.4	7.4

Table 8-9 Physico-chemical status thresholds for river water bodies from the WFD Directions 2015

Parameter	High	Good	Moderate	Poor	Bad
Orthophosphate (mg/l) Annual mean	<0.045	0.045 - 0.09	0.09 - 0.20	0.20 - 1.06	>1.06
Ammonia (mg/l as N) 90th percentile	<0.3	0.3 - 0.6	0.6 - 1.1	1.1 - 2.5	>2.5
BOD (mg/l) 90th percentile	<4	4 - 5	5 - 6.5	6.5 - 9	>9
pH 5th & 95th percentile (high) 10th percentile (other)	≥6 - ≤9		<6 – 4.7	<4.7 – 4.2	<4.2

Figure 8-2 Modelled water quality in Riders Lane Stream and Hermitage Stream compared to physico-chemical status thresholds from the WFD Directions 2015: BOD, orthophosphate and ammonia

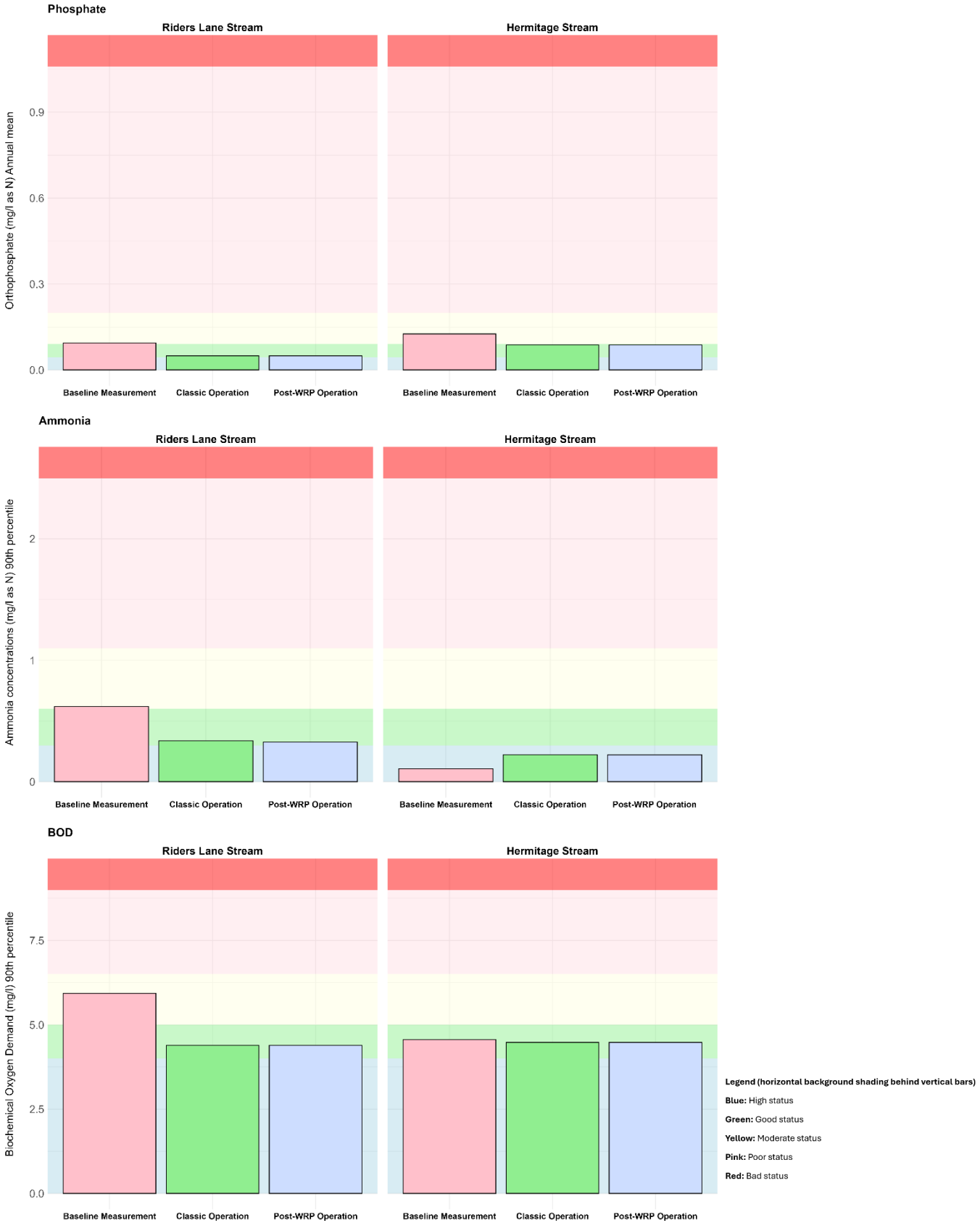
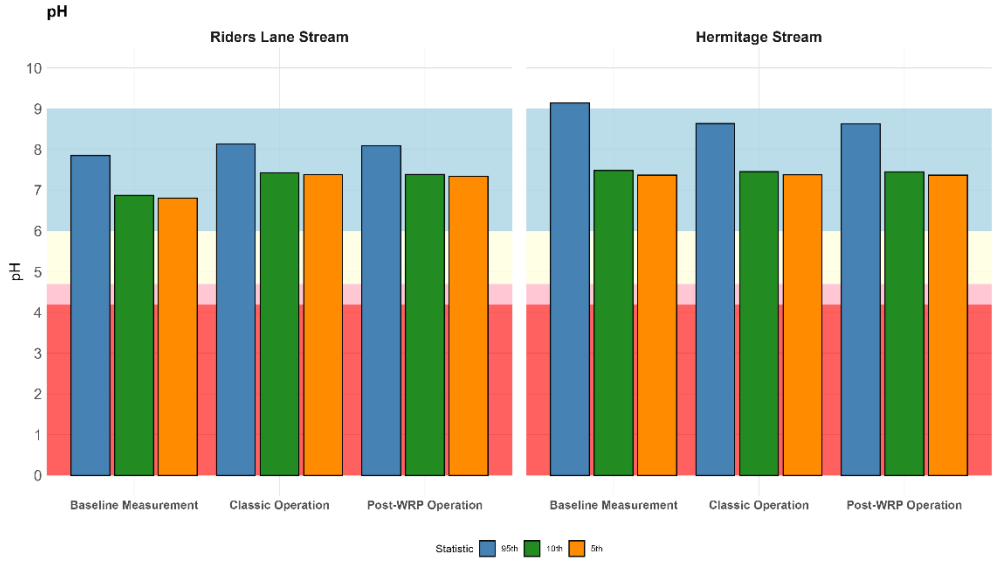


Figure 8-3 Modelled water quality in Riders Lane Stream and Hermitage Stream compared to physico-chemical status thresholds from the WFD Directions 2015: pH



Legend (horizontal background shading behind vertical bars)

Blue: High status

Green: Good status

Yellow: Moderate status

Pink: Poor status

Red: Bad status

8.4.34 Table 8-8, Figure 8-2 and Figure 8-3 demonstrate that in Riders Lane Stream, changes in concentrations of orthophosphate, ammonia and BOD over the measured baseline during the classic operational scenario would result in an improvement in physico-chemical status from Moderate to Good. The lower boundary of pH (5th percentile) would improve from Moderate to High under the classic scenario, whilst the upper boundary of pH (95th percentile) would remain unchanged at High. Under the post-WRP operational scenario, physico-chemical status for all parameters would remain the same as under the classic operational scenario; the Proposed Development would not therefore result in deterioration in water body status.

8.4.35 Table 8-8, Figure 8-2 and Figure 8-3 also demonstrate that in Hermitage Stream, there would be no deterioration in the status of any of the physico-chemical quality elements considered in the modelling exercise between the measured baseline and the classic and post-WRP operational scenarios. Orthophosphate concentrations would reduce, moving the physico-chemical status for this quality element from Moderate to the Good-Moderate boundary. As per the pattern established in the Riders Lane sub-catchment of the Hermitage Stream water body, the Proposed Development would not therefore result in deterioration in water body status.

8.4.36 With the primary phosphorus reduction control measures described in section 3.2 in place at the WRP, operation of the Proposed Development would not, therefore, result in a deterioration in the chemistry and physico chemistry status of the reservoir or prevent status objectives being achieved in the future.

Biology

8.4.37 As described for chemistry and physico-chemistry, modelling results indicate that compensatory flows from the reservoir following the introduction of recycled water are likely to result in minor changes in water quality in Riders Lane Stream and negligible changes in Hermitage Stream.

8.4.38 Predictions for BOD, DO concentration and orthophosphate concentration in Riders Lane Stream are considered to be the most important in terms of considering potential effects on freshwater biodiversity. Orthophosphate and BOD are predicted to decrease in the post-WRP scenario, by 2.6% (0.003mg/l) and 1.8% (0.12mg/l), respectively. A 1% increase in DO is predicted (0.19mg/l). These changes represent a very slight improvement in the quality of compensation flows in the post-WRP scenario.

8.4.39 The extent of water quality changes predicted in Riders Lane Stream and Hermitage Stream (freshwater reach) during the post-WRP operation scenario are not considered sufficient to result in a deterioration in freshwater biodiversity (see ES Chapter 8 Terrestrial and freshwater biodiversity, Volume I (Document reference 6.1, DCO Volume 6)). The operation of the Proposed Development would not, therefore, result in a deterioration in the biological status of Riders Lane Stream or Hermitage Stream or prevent status objectives being achieved in the future.

Langstone Harbour/Langstone Oysterbeds

Chemistry and physico-chemistry

8.4.40 Water quality modelling of chemical parameters at Havant Thicket Reservoir indicate that there are negligible changes in water quality in Langstone Harbour between the modelled Havant Thicket Reservoir classic operation and the post-WRP operation scenarios (ES Appendix 19.6 Havant Thicket Reservoir Compensatory Flows water quality modelling, Volume II, (Document reference 6.2, DCO Volume 6)).

8.4.41 Concentrations of nitrogen compounds would remain unchanged; this is particularly important as nitrogen is typically the key limiting nutrient for primary production in transitional and coastal ecosystems.

8.4.42 The release of compensatory flows would not, therefore, result in deterioration in the physico-chemistry or chemistry of the Langstone Harbour water body or prevent status objectives being achieved in the future.

Biology

8.4.43 Compensatory flows water quality modelling provides information on the predicted changes in water quality and chemical parameters due to the compensatory flow at the tidal limit of Hermitage Stream and northern end of Langstone Harbour that inform any effects on the intertidal communities in those areas.

8.4.44 Compensatory flows modelling has predicted that within Langstone Harbour changes in water quality parameters are negligible, when comparing the classic operation scenario with the post-WRP operation scenario (ES Appendix 19.6 Havant Thicket Reservoir Compensatory Flows water quality modelling, Volume II,

(Document reference 6.2, DCO Volume 6)). As such these changes are not considered to be sufficient to influence the habitats and species in the harbour (see ES Chapter 9 Marine biodiversity, Volume I (Document reference 6.1, DCO Volume 6)).

8.4.45 Operation of the Proposed Development would not result in a deterioration in the biological status of Langstone Harbour or prevent status objectives being achieved in the future.

Protected Areas

8.4.46 The following Protected Areas have been scoped into the assessment:

1. Chichester, Langstone and Portsmouth Harbours Eutrophic NVZ
2. Langstone Harbour UWTDPA
3. Langstone Harbour, Portsmouth Harbour and Chichester Harbour and (Emsworth Channel) Shellfish Waters

8.4.47 The previous sections have demonstrated that the likely changes in water quality in Hermitage Stream and Langstone Harbour are negligible and would not result in adverse impacts on the biology, physico-chemistry or chemistry of the Langstone Harbour water body. As a result, the operation of the Proposed Development would not adversely affect compliance of the Protected Areas with their respective aims and objectives.

8.4.48 Note that any changes in nutrient loading are assessed in detail in ES Appendix 19.7 Nutrient Assessment, Volume II, (Document reference 6.2, DCO Volume 6).

Alternative reservoir fill scenario

8.4.49 As described above for the future Havant Thicket Reservoir water body, an 'alternative reservoir fill' scenario has been considered to ensure that the scenario testing is as comprehensive as possible. This considers a period where the initial classic operation scenario does not occur and the filling of the reservoir is achieved through a combination of both spring water and recycled water. Statistical analysis was used to determine whether there were any significant differences between the scenarios.

8.4.50 The results of the statistical analysis of the quality of compensatory flows are described in full ES Chapter 19 Water environment, Volume I (Document Reference 6.1, Volume 6). This demonstrates that the mean values of TN (+0.710 mg/l), NO_3 (+0.738 mg/l), TP (+0.001 mg/l) and PO_4 (+0.002 mg/l) are slightly higher in the 'alternative reservoir fill' scenario than they are for the corresponding period in the post-WRP scenario. Conversely, the mean values of NH_4 (-0.009 mg/l), DIC (-0.004 mg/l), BOD (-0.201 mg/l) and DO (-0.001 g/l) are slightly lower in the 'alternative reservoir fill' scenario than they are in the post-WRP scenario. The low Wilcoxon P values (i.e. <0.05) reported in Table 19 58 of ES Chapter 19 Water environment, Volume I (Document Reference 6.1, Volume 6) indicate that the difference between the paired samples for each parameter is statistically significant.

8.4.51 However, the differences in predicted concentrations observed for each water quality parameter are very small. In each case, the differences between data pairs are well within the range of observed and predicted concentrations of each

parameter and smaller than the very minor differences identified between the different baseline operational scenarios (i.e. the classic and post-WRP operation scenarios).

8.4.52 Furthermore, a sensitivity analysis undertaken as part of the compensatory flows modelling (presented in ES Appendix 19.6 Havant Thicket Reservoir Compensatory Flows water quality modelling, Volume II, (Document Reference 6.2, Volume 6) demonstrated that changes to input concentrations (i.e. reservoir withdrawal water) of a similar magnitude to those described above resulted in very limited differences in water quality in Riders Lane Stream, Hermitage Stream and Langstone Harbour. The magnitude of change is greatest in Riders Lane Stream and decreases with increasing distance downstream from the reservoir input (noting that this is analogous with the predicted changes to water quality from baseline conditions reported above).

8.4.53 The differences between the two scenarios are not considered to be sufficient to significantly alter water quality (cf. ES Chapter 19 Water environment, Volume I (Document Reference 6.1, Volume 6)) or aquatic ecology (cf. ES Chapter 8 Terrestrial and aquatic ecology, Volume I (Document Reference 6.1, Volume 6)), and would not affect the physico-chemical status class of the reservoir. The 'alternative reservoir fill' scenario is therefore not expected to result in a significant change in the quality of water bodies that would receive compensatory flows or cause deterioration in water body status.

Stage 3 summary

8.4.54 The assessment presented in the previous sections demonstrates that the release of recycled water from the WRP:

1. Would not result in deterioration of the Havant Thicket Reservoir (water body ID number not yet available), Hermitage Stream (GB107042016370) or Langstone Harbour (GB580705130000)/Langstone Oysterbeds (GB510070073000) water bodies.
2. Would not adversely affect the Chichester, Langstone and Portsmouth Harbours Eutrophic NVZ, Langstone Harbour UWTDPA, Langstone Harbour Shellfish Water or Chichester Harbour (Emsworth Channel) Shellfish Water.
3. Would not prevent the environmental objectives of the WER (including any improvements in water body status or the condition of Protected Areas) being achieved now or in the future.

8.4.55 This component is therefore considered to be compliant with the requirements of the WER.

9 Release from the Eastney Long Sea Outfall

9.1 Component description

9.1.1 Reject water produced by the WRP site would be returned to Budds Farm WTW by gravity using the Pipelines between Budds Farm WTW and the WRP site. The reject water would then be transferred via a new connection to the existing Eastney Transfer Tunnel (TT) and Eastney Pumping Station (PS) to the Eastney LSO. Works on the Eastney TT would include the connection at Budds Farm WTW for the reject water from the WRP site, which are included in the works for the Pipelines between Budds Farm WTW and the WRP site.

9.1.2 In the event of an emergency shut down of the WRP site, water within the WRP would be returned to Budds Farm WTW by opening the run to waste valve. This water would then be released using the existing Eastney TT, Eastney PS and Eastney LSO. During the operational phase of the Development, the volume of treated wastewater from Budds Farm WTW released from the Eastney LSO would be reduced, as treated wastewater from Budds Farm WTW is diverted to the WRP.

9.2 Stage 1: Screening

Identification of activities

9.2.1 This section divides the component into activities and identifies the water bodies potentially at risk using the information included on water body extent in Catchment Data Explorer [7].

9.2.2 The component has been separated into activities in line with the requirements of the guidance produced by the EA [3] and Planning Inspectorate [2]. These activities are listed in Table 9-1. Given there are no construction activities associated with this component, construction activities are not included in Table 9-1.

Table 9-1 Summary of activities for the component 'release from the Eastney Long Sea Outfall'

Reference number	Activity	Sub activities included
Operation		
O1	Changes to existing release at Eastney LSO	Combined change in existing release due to use of wastewater for water recycling and addition of reject water from the WRP site.

Water body identification

9.2.3 ES Appendix 19.2 Figure 12 Eastney Long Sea Outfall and water body boundaries, Volume III (Document reference 6.3, DCO Volume 6) shows the Eastney LSO location and water body boundaries. A screening exercise has been undertaken to identify which of the water bodies have the potential to be impacted by the activity based on studies undertaken to inform option appraisal which considered currently

permitted parameters The Budds Farm WTW permit (reference: A.751/H/97) contains specific limits for BOD, COD, suspended solids, total nitrogen and total iron in the treated wastewater and modelling was undertaken to determine whether the changes to the existing release would likely be significant in terms of concentration and spatial effect. In addition to the parameters listed above, the effect of changes in salinity was also modelled. The full report is presented in ES Appendix 19.5 Eastney Long Sea Outfall Solent dispersion modelling, Volume II, (Document reference 6.2, DCO Volume 6).

9.2.4 The results of the screening exercise are provided in Table 9-2. Note that the scale of the predicted modelled changes is such that the combination of the reject water and reduction in treated wastewater would not result in any changes to water quality into the wider area water bodies, such as Langstone Harbour, Chichester Harbour, Portsmouth Harbour and Southampton Water.

Table 9-2 Results of screening assessment for the release from Eastney Long Sea Outfall

Water body name and ID number	Type	Description	Screened in?	Justification
Solent (GB650705150000)	Coastal	Water body designated as a HMWB and is at Moderate Ecological Potential due to angiosperms (saltmarsh) and dissolved inorganic nitrogen. In 2019 Chemical Status is at Fail due to mercury and its compounds and PBDE. In 2022 Chemical Status is listed as not requiring assessment. RNAG and quality element affected: • Physical modification - angiosperms • Mitigation measures delivered to address reason, awaiting recovery (mercury and its compounds; PBDE) Objectives: • Moderate Ecological Potential by 2015 • Good Chemical Status by 2063	Yes	Early modelling for option appraisal indicates that there could be changes to water quality within this water body. See ES Appendix 19.5 Eastney Long Sea Outfall Solent dispersion modelling, Volume II, (Document reference 6.2, DCO Volume 6).
Isle of Wight East (GB650705530000)	Coastal	Water body designated as a HMWB and is at Good Ecological Potential. In 2019 Chemical Status is Fail due mercury and its compounds and PBDE. In 2022 Chemical Status is listed as not requiring assessment. RNAG and quality element affected: • Mitigation measures delivered to address reason, awaiting recover (mercury and its compounds and PBDE) Objectives: • Good Ecological Potential by 2015 • Good Chemical Status by 2063	Yes	Early modelling for option appraisal indicates that there could be changes to water quality within this water body (see ES Appendix 19.5 Eastney Long Sea Outfall Solent dispersion modelling, Volume II, (Document reference 6.2, DCO Volume 6).

9.2.5 The screening exercise demonstrates that the release from the Eastney LSO could potentially have an impact on the following water bodies:

1. Solent (GB650705150000)
2. Isle of Wight (GB650705530000)

9.2.6 Annex A provides summary data for all water bodies relevant to this WER Compliance Assessment.

9.3 Stage 2: Scoping

Introduction

9.3.1 This section presents the results of the scoping stage undertaken on the water bodies identified in Table 9-2. Scoping examines the potential for the activities identified to impact water bodies and their quality elements, any improvement and mitigation measures identified by the EA, and any associated Protected Areas. The results of the scoping stage determine which water bodies and quality elements require further assessment as part of the Stage 3: Impact Assessment.

Impacts of activities on water body quality elements

Assessment of potential mechanisms for impact

9.3.2 The results of the scoping stage are summarised in Table 9-3. For activity O1, Table 9-3 scopes in water quality and biology (habitats and fish). As a result, this activity and the two water bodies at risk; Solent and Isle of Wight East, have been scoped into Stage 3: Impact Assessment.

Table 9-3 Activities with the potential to affect water body quality elements and status for the release from the Eastney Long Sea Outfall

Activity	Water body	Scoping results
O1 (changes to Eastney LSO release)	Solent (GB650705150000)	**Hydromorphology:** The proposed changes to the volume and rate of release would not be sufficient to affect the existing hydromorphology of the water body. Modelling undertaken in ES Appendix 19.5 Eastney Long Sea Outfall Solent dispersion modelling, Volume II, (Document reference 6.2, DCO Volume 6) did not indicate significant differences in suspended solids concentrations, therefore there is no risk to existing sediment transport processes. There is therefore no pathway for effect on the hydromorphology of the water body. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: Scoped in on the basis that changes to the chemical composition and quality of the release from Eastney LSO could impact on chemistry and physico-chemistry.
		Biology: Scoped in on the basis that changes to the chemical composition and quality of the release from Eastney LSO could impact on the chemistry and physico-chemistry of the water body, which could in turn impact on biological quality elements.
	Isle of Wight East (GB650705530000)	**Hydromorphology:** There would be no activities directly within this water body. Modelling undertaken in ES Appendix 19.5 Eastney Long Sea Outfall Solent dispersion modelling, Volume II, (Document reference 6.2, DCO Volume 6) did not indicate significant differences in suspended solids concentrations therefore there is no risk to existing sediment transport processes. There is therefore no pathway for effect on the hydromorphology of the water body. Effects on hydromorphology are therefore scoped out.
		Chemistry and physico-chemistry: Scoped in on the basis that changes to the chemical composition and quality of the release from Eastney LSO could impact on chemistry and physico-chemistry.
		Biology: Scoped in on the basis that changes to the chemical composition and quality of the release from Eastney LSO could impact on chemistry and physico-chemistry, which could in turn impact on biological quality elements.

Impacts of Proposed Development activities on River Basin Management Plan mitigation measures

River Basin Management Plan mitigation measures applicable to each water body

9.3.3 A range of RBMP mitigation measures have been identified for the two water bodies. These are detailed in Table 9-4. In each case, all measures have been identified as being in place; there are no measures that are not yet in place.

Table 9-4 Potential Impacts of the release from the Eastney Long Sea Outfall on River Basin Management Plan mitigation measures

RBMP mitigation measure	Status	Potential impact
Solent (GB650705150000)		
Sediment removal or deposition for flood defence purposes; sediment removal and reinstatement for fisheries interest; aggregate extraction; land drainage and beach replenishment	In place	There are no mechanisms for the activity to affect the delivery of the sediment management measures that are in place in the water body.
Implement an active sediment management regime	In place	
Isle of Wight East (GB650705530000)		
Removal of hard engineering structures that modify the natural flow and sediment regime, including weirs, locks, floodgates, sluices, and erosion control structures	In place	The activity would use existing infrastructure therefore no additional hard structures required.
Implement an active sediment management regime	In place	No dredging and disposal is required.
Selection of dredge disposal sites to cause minimum ecological impact	In place	
Rehabilitation of degraded bankside habitats to improve their physical structure and the condition of the riparian zone. Bank rehabilitation includes bank reprofiling, the creation of aquatic ledges and removal of hard bank protection	In place	The activity would use existing infrastructure and therefore would not affect the delivery of bankside rehabilitation of habitats.
Sediment removal or deposition for flood defence purposes; sediment removal and reinstatement for fisheries interest; aggregate extraction; land drainage and beach replenishment	In place	The activity would use existing infrastructure. There is no requirement for sediment disturbance/dredging and disposal.

Assessment of potential mechanisms for impact

9.3.4 Table 9-4 presents an assessment of potential impacts of the activity associated with the release from the Eastney LSO on each RBMP mitigation measure. This demonstrates that the activity would not counteract or adversely affect the delivery

of the RBMP mitigation measures that are already in place. RBMP mitigation measures do not, therefore, require assessment in Stage 3: Impact Assessment.

Impacts of the activities on Protected Areas

Protected Areas

9.3.5 The Clearing the Waters for All guidance [3] recommends further assessment of Protected Areas that are within 2km of a new project. Protected Areas within 2km of the Eastney LSO are listed in Table 9-5 and shown in ES Appendix 19.2 Figure 13 Eastney Long Sea Outfall and Protected Areas within a 2km buffer, Volume III, (Document reference 6.3, DCO Volume 6).

Table 9-5 Protected Areas within 2km

Protected Area within 2km
Solent and Dorset Coast SPA
Spithead and Stokes Bay SPA
Ryde Shellfish Water

Assessment of potential mechanisms for impact

9.3.6 The NSN sites (Solent and Dorset SPA and Spithead and Stokes Bay SPA) are located within 2km of the Eastney LSO. WER compliance assessments require the consideration of the potential effects on quality elements (hydromorphological, physico-chemical, chemical and biological), many of which support ecological interest features for which the NSN Protected Areas are designated. The HRA (Habitats Regulations Assessment – Stage 2 Appropriate Assessment and Marine Conservation Zone – Stage 1 Assessment (Document reference 5.2, DCO Volume 5)) therefore builds on the output of WER compliance assessments to assess the potential effects on designated site interest features. To avoid duplication with the HRA, impacts on the designated site interest features themselves are not considered in this WER compliance assessment and instead are covered in the HRA (Habitats Regulations Assessment – Stage 2 Appropriate Assessment and Marine Conservation Zone – Stage 1 Assessment (Document reference 5.2, DCO Volume 5)).

9.3.7 The Ryde Shellfish Water is located within 2km of the Eastney LSO. Given that the chemical characteristics of the release could change, this Protected Area is scoped into Stage 3: Impact Assessment.

Stage 2 summary

9.3.8 Activity O1 and the water bodies Isle of Wight East (GB650705530000) and Solent (GB650705150000) alongside the Ryde Shellfish Water are scoped into Stage 3: Impact Assessment.

9.4 Stage 3: Impact Assessment

Introduction

9.4.1 This section presents the results of the impact assessment on the scoped in water bodies (Isle of Wight East (GB650705530000) and Solent (GB650705150000)) and the Ryde Shellfish Water.

9.4.2 The Stage 3: Impact assessment determines whether the component and associated activities would cause a deterioration of water body status, and whether such deterioration would have a non-temporary effect on the status of one or more quality elements at a water body level.

9.4.3 The results of water quality modelling undertaken to identify potential effects have been used for this impact assessment. These are presented in Appendix 19.5 Eastney Long Sea Outfall Solent dispersion modelling, Volume II, (Document reference 6.2, DCO Volume 6) and Appendix 19.8 Hampshire Water Transfer and Water Recycling Project Eastney Long Sea Outfall - CORMIX Modelling for Chemicals Screened in via the Surface Water Risk Assessment Process, Volume II (Document reference 6.2, DCO Volume 6).

Approach to the assessment

9.4.4 To address the potential for chemical parameters to be within the combined release, the process outlined in the EA's guidance 'Surface water pollution risk assessment for your environmental permit [12]' was applied. This requires a number of screening tests to check the potential risk from hazardous chemicals using EQS thresholds as set out in the WFD Directions. If screening tests identify a potential risk to EQS, then modelling is required. There are three stages to screening:

1. Step 1: Identify the pollutants released – this requires monitoring either of an existing release or equivalent release (for example a pilot plant).
2. Step 2. Gather data on the pollutants – this requires monitoring of the environment into which the release would be made.
3. Step 3: Carry out screening tests for coastal/estuarine waters.

9.4.5 Two operational scenarios were considered in the screening assessment:

1. The first assumes a percentage of removal of each parameter through the WRP membranes which is transferred into the reject water for release via the Eastney LSO. This is referred to as the 'normal operation' scenario and reflects a worst-case.
2. The second operational scenario assumes 100% of each parameter is removed via the WRP membranes and transferred to the reject water for release. This operational scenario is referred to as the '100% membrane removal' scenario. This allows for an absolute worst-case assessment.

9.4.6 Three flow conditions are considered for each operational scenario as follows:

1. The WRP operating at 60Ml/d;
2. The WRP operating at 30Ml/d and Budds Farm WTW operating at Flow to Full Treatment (FFT) (Budds Farm WTW is operating at full capacity); and

3. The WRP operating at 30Ml/d and Budds Farm WTW operating at Dry Weather Flow (DWF) (average daily flow to a Budds Farm WTW during a period without rain).

9.4.7 The parameters screened in are outlined in Table 9-6.

Table 9-6 Summary of parameters screened in for modelling

Scenario	Flow	Screened in parameters
Normal operation	60Ml/d	Copper - dissolved (Dissolved organic carbon (DOC) greater than 1mg/l) Triphenyltin and its derivatives
	30Ml/d FFT	Copper - dissolved (Dissolved organic carbon (DOC) greater than 1mg/l)
	30Ml/d DWF	Copper - dissolved (Dissolved organic carbon (DOC) greater than 1mg/l)
100% membrane removal	60Ml/d	Copper - dissolved DOC greater than 1mg/l Diflubenzuron Triphenyltin and its derivatives
	30Ml/d FFT	Copper - dissolved (Dissolved organic carbon (DOC) greater than 1mg/l)
	30Ml/d DWF	Copper - dissolved (Dissolved organic carbon (DOC) greater than 1mg/l)

9.4.8 Given that the dispersion modelling indicates mixing occurs in the near field (ES Appendix 19.5 Eastney Long Sea Outfall Solent dispersion modelling, Volume II, (Document reference 6.2, DCO Volume 6), the US Environmental Protection Agency (USEPA)-supported Cornell Mixing Zone Expert System (CORMIX) mixing zone model software was used to provide dilution and concentration distributions of the selected parameters.

9.4.9 Using this output, the required dilution factors (RDF) for each parameter were then calculated relative to the EQS values to obtain the distance from the LSO at which the EQS is reached. The results are summarised in Table 9-7.

Table 9-7 Distances at which the EQS is met for each parameter screened in

Scenario	Flow	Parameters	EQS type	Distance to RDF (m)
Normal operation	60Ml/d	Copper	Annual Average (AA)	0.440
		Triphenyltin and its derivatives	Maximum Allowable Concentration (MAC)	0.257
	30Ml/d FFT	Copper	AA	0.321

Scenario	Flow	Parameters	EQS type	Distance to RDF (m)
	30Ml/d DWF	Copper	AA	0.279
100% membrane removal	60Ml/d	Copper	AA	0.444
		Diflubenzuron	AA	1.029
		Diflubenzuron	MAC	0.171
		Triphenyltin and its derivatives	MAC	0.279
	30Ml/d FFT	Copper	AA	0.323
	30Ml/d DWF	Copper	AA	0.281

Potential impacts on water body status

Chemistry and physico-chemistry

9.4.10 For copper, results were compared to the Annual Average (AA) EQS as there is no Maximum Allowable Concentration (MAC) EQS for this parameter. For triphenyltin, the results were compared to the MAC EQS as there is no AA EQS for this parameter. Results indicate that for both operational scenarios and all three flows that, the distance to RDF is less than 0.5m. The mixing zone for these parameters is therefore spatially limited to the immediate area of the LSO.

9.4.11 For diflubenzuron, both the AA and MAC EQS were assessed but for the '100% membrane removal' only as this parameter was screened out in the 'normal operation' scenario. In line with EA guidance, where baseline data is not available (all baseline samples for this parameter returned below the limit of detection) the baseline was assumed to be 50% of the EQS. Using this baseline, the distance to EQS was calculated at 1.03m and 0.17m for the AA EQS and MAC EQS, respectively. The mixing zone for this parameter is therefore also spatially limited to the immediate area of the LSO.

9.4.12 The screening output and full modelling report is presented in ES Appendix 19.8 Hampshire Water Transfer and Water Recycling Project Eastney Long Sea Outfall - CORMIX Modelling for Chemicals Screened in via the Surface Water Risk Assessment Process, Volume II (Document reference 6.2, DCO Volume 6).

9.4.13 Given the small distances from the LSO required to meet the EQS, the mixing zones for each parameter screened in would be very small and likely to be limited to the Solent water body. Effects on water quality within the water body are therefore considered to be insufficient to affect the chemistry or physico-chemistry of the water body. No effects on the Isle of Wight East water body are predicted.

Biology

9.4.14 The previous section demonstrates that any changes to water quality in the Solent would be highly localised and insufficient to affect the chemistry or physico-chemistry of the water body, and that water quality in the Isle of Wight East water body would be unaffected. On this basis, no effects on biological quality elements within these water bodies are predicted. Furthermore, the lack of effect on the biological quality elements means that the releases are not considered to limit improvements in the biology of either water body being achieved in the future.

Protected Areas

9.4.15 Given it is concluded that there are no effects on water quality, effects are not predicted on the Ryde Shellfish Water. Furthermore, the lack of effect means that the releases are not considered to limit improvements in the condition of the Protected Area being achieved in the future.

Stage 3 summary

9.4.16 The assessment presented in the previous sections demonstrates that releases from Eastney LSO:

1. Would not result in deterioration in the status of the Isle of Wight East (GB650705530000) or Solent (GB650705150000) water bodies.
2. Would not adversely affect the Ryde Shellfish Water.
3. Would not prevent the environmental objectives of the WER (including any improvements in water body status or the condition of Protected Areas) being achieved now or in the future.

9.4.17 This component is therefore considered to be compliant with the requirements of the WER.

10 Summary of assessment

10.1 Summary of Stage 2: Scoping

10.1.1 Table 10-1 summarises the output of Stage 2: Scoping, demonstrating that, on the basis of the mitigation commitments set out in section 3.2, the majority of the activities associated with the Proposed Development would not result in deterioration in the status of any river, lake, transitional, coastal or groundwater bodies and would not prevent status objectives being achieved in these water bodies in the future.

10.1.2 However, potential impacts resulting from the following activities were scoped in for further assessment:

1. The use of Havant Thicket Reservoir for the storage of recycled water and potential effects on water quality within the reservoir and downstream water bodies that would receive compensatory flows during operation.
2. Release of reject water via the Eastney LSO during the operational phase could potentially impact water quality with effects on marine ecology.

Table 10-1 Summary of Stage 2: Scoping

Component	Activity	Water body(s)	Summary of scoping	Stage 3 required
Water Recycling Plant site	C1 Construction of WRP and pumping stations	East Hants Chalk (GB40701G502700) South Hants Lambeth Group (GB40702G503700) Langstone Harbour (GB580705130000) and Langstone Oysterbeds (GB510070073000)	Potential risks to water bodies for this component during construction would be managed via embedded mitigation in the Outline CEMP (Document reference 7.1, DCO Volume 7).	No
	O1 Presence of WRP		Potential risks to water bodies for this component during operation would be managed via embedded mitigation in the OEMP (Document reference 7.7, DCO Volume 7).	No
Pipelines between Budds Farm Wastewater Treatment Works and the Water Recycling Plant site	C1 Construction of Pipeline	East Hants Chalk (GB40701G502700) South Hants Lambeth Group (GB40702G503700) Langstone Harbour (GB580705130000) and Langstone Oysterbeds (GB510070073000)	Potential risks to water bodies for this component during construction would be managed via embedded mitigation in the Outline CEMP (Document reference 7.1, DCO Volume 7).	No
	O1 Presence of Pipeline		The dimensions of the infrastructure mean that any changes to groundwater flows would be negligible. For surface water bodies, no pathway for effect associated with the presence of new infrastructure in these water bodies has been identified.	No
Pipelines between the Water Recycling	C1 Construction of Pipelines between the	East Hants Chalk (GB40701G502700) South Hants Lambeth Group (GB40702G503700)	Potential risks to water bodies for this component during construction would be managed via embedded mitigation in the	No

Component	Activity	Water body(s)	Summary of scoping	Stage 3 required
Plant site and Bedhampton Springs	WRP site and Bedhampton Springs	Langstone Harbour (GB580705130000) and Langstone Oysterbeds (GB510070073000) Hermitage Stream (GB107042016370)	Outline CEMP (Document reference 7.1, DCO Volume 7).	
	O1 Presence of Pipelines between the WRP site and Bedhampton Springs	East Hants Chalk (GB40701G502700) South Hants Lambeth Group (GB40702G503700) Langstone Harbour (GB580705130000) and Langstone Oysterbeds (GB510070073000) Hermitage Stream (GB107042016370)	Potential risks to water bodies for this component during operation would be managed via embedded mitigation in the OEMP (Document reference 7.7, DCO Volume 7).	No
Pipeline between the Water Recycling plant site and Otterbourne Water Supply Works	C1 Construction of Section D: The Water Recycling Plant site to Portsdown Hill	East Hants Chalk (GB40701G502700) South Hants Lambeth Group (GB40702G503700) Potwell Trib (GB107042016400) Coastal catchment associated with Langstone Harbour (GB580705130000) and Langstone Oysterbeds (GB510070073000)	Potential risks to water bodies for this component during construction would be managed via embedded mitigation in the Outline CEMP (Document reference 7.1, DCO Volume 7).	No
	C2 Construction of Section E: Portsdown Hill to Boarhunt	East Hants Chalk (GB40701G502700) South Hants Lambeth Group (GB40702G503700) Potwell Trib (GB107042016400) Wallington below Southwick (GB107042016360)	Potential risks to water bodies for this component during construction would be managed via embedded mitigation in the Outline CEMP (Document reference 7.1, DCO Volume 7).	No

Component	Activity	Water body(s)	Summary of scoping	Stage 3 required
	C3 Construction of Section F: Boarhunt to Crockerhill	East Hants Chalk (GB40701G502700) South Hants Lambeth Group (GB40702G503700) Wallington below Southwick (GB107042016360)	Potential risks to water bodies for this component during construction would be managed via embedded mitigation in the Outline CEMP (Document reference 7.1, DCO Volume 7).	No
	C4 Construction of Section G: Crockerhill to Wickham	South East Hants Bracklesham Group (GB40702G503000) Meon (GB107042016640)	Potential risks to water bodies for this component during construction would be managed via embedded mitigation in the Outline CEMP (Document reference 7.1, DCO Volume 7).	No
	C5 Construction of Section H: Wickham to Shedfield	South East Hants Bracklesham Group (GB40702G503000) Meon (GB107042016640) Coastal catchment associated with Southampton Water (GB520704202800)	Potential risks to water bodies for this component during construction would be managed via embedded mitigation in the Outline CEMP (Document reference 7.1, DCO Volume 7).	No
	C6 Construction of Section J: Shedfield to the River Hamble	South East Hants Bracklesham Group (GB40702G503000) Main River Hamble (GB107042016250) Moors Stream (GB107042016260) Coastal catchment associated with Southampton Water (GB520704202800)	Potential risks to water bodies for this component during construction would be managed via embedded mitigation in the Outline CEMP (Document reference 7.1, DCO Volume 7).	No
	C7 Construction of Section K: The River Hamble to Lower Upham	Main River Hamble (GB107042016250) Upper Hamble (GB107042016280)	Potential risks to water bodies for this component during construction would be managed via embedded mitigation in the	No

Component	Activity	Water body(s)	Summary of scoping	Stage 3 required
		Horton Heath Stream (GB107042016270)	Outline CEMP (Document reference 7.1, DCO Volume 7).	
	C8 Construction of Section L: Lower Upham to Brambridge	East Hants Lambeth Group (GB40702G500800) Horton Heath Stream (GB107042016270) Bow Lake (GB107042016650) Itchen (GB107042022580)	Potential risks to water bodies for this component during construction would be managed via embedded mitigation in the Outline CEMP (Document reference 7.1, DCO Volume 7).	No
	C9 Construction of Section M: Brambridge to Otterbourne WSW	Central Hants Lambeth Group (GB40702G503800) River Itchen Chalk (GB40701G505000) Itchen (GB107042022580) Itchen Navigation (GB70710008)	Potential risks to water bodies for this component during construction would be managed via embedded mitigation in the Outline CEMP (Document reference 7.1, DCO Volume 7).	No
	O1 Presence of Section D: The Water Recycling Plant site to Portsdown Hill	East Hants Chalk (GB40701G502700) South Hants Lambeth Group (GB40702G503700) Potwell Trib (GB107042016400) Coastal catchment associated with Langstone Harbour (GB580705130000)	Impacts from any future activities would be managed through best practice measures as set out in the OEMP (Document reference 7.7, DCO Volume 7).	No
	O2 Presence of Section E: Portsdown Hill to Boarhunt	East Hants Chalk (GB40701G502700) South Hants Lambeth Group (GB40702G503700) Potwell Trib (GB107042016400) Wallington below Southwick (GB107042016360)	Impacts from any future activities would be managed through best practice measures as set out in the OEMP (Document reference 7.7, DCO Volume 7).	No

Component	Activity	Water body(s)	Summary of scoping	Stage 3 required
	O3 Presence of Section F: Boarhunt to Crockerhill	East Hants Chalk (GB40701G502700) South Hants Lambeth Group (GB40702G503700) Wallington below Southwick (GB107042016360)	Impacts from any future activities would be managed through best practice measures as set out in the OEMP (Document reference 7.7, DCO Volume 7).	No
	O4 Presence of Section G: Crockerhill to Wickham	South East Hants Bracklesham Group (GB40702G503000) Meon (GB107042016640)	Impacts from any future activities would be managed through best practice measures as set out in the OEMP (Document reference 7.7, DCO Volume 7).	No
	O5 Presence of Section H: Wickham to Shedfield	South East Hants Bracklesham Group (GB40702G503000) Meon (GB107042016640) Coastal catchment associated with Southampton Water (GB520704202800)	Impacts from any future activities would be managed through best practice measures as set out in the OEMP (Document reference 7.7, DCO Volume 7).	No
	O6 Presence of Section J: Shedfield to the River Hamble	South East Hants Bracklesham Group (GB40702G503000) Main River Hamble (GB107042016250) Moors Stream (GB107042016260) Coastal catchment associated with Southampton Water (GB520704202800)	Impacts from any future activities would be managed through best practice measures as set out in the OEMP (Document reference 7.7, DCO Volume 7).	No
	O7 Presence of Section K: The River Hamble to Lower Upham	Main River Hamble (GB107042016250) Upper Hamble (GB107042016280) Horton Heath Stream (GB107042016270)	Impacts from any future activities would be managed through best practice measures as set out in the OEMP (Document reference 7.7, DCO Volume 7).	No

Component	Activity	Water body(s)	Summary of scoping	Stage 3 required
	O8 Presence of Section L: Lower Upham to Brambridge	East Hants Lambeth Group (GB40702G500800) Horton Heath Stream (GB107042016270) Bow Lake (GB107042016650) Itchen (GB107042022580)	Impacts from any future activities would be managed through best practice measures as set out in the OEMP (Document reference 7.7, DCO Volume 7).	No
	O9 Presence of Section M: Brambridge to Otterbourne Water Supply Works	Central Hants Lambeth Group (GB40702G503800) River Itchen Chalk (GB40701G505000) Itchen (GB107042022580) Itchen Navigation (GB70710008)	Impacts from any future activities would be managed through best practice measures as set out in the OEMP (Document reference 7.7, DCO Volume 7).	No
Use of Havant Thicket Reservoir for the storage of recycled water	O1 Use of Havant Thicket Reservoir for storage of recycled water	Havant Thicket Reservoir (no GB number) Hermitage Stream GB107042016370) Langstone Harbour (GB580705130000) and Langstone Oysterbeds (GB510070073000)	There is the potential that the recycled water could differ in basic chemistry therefore release into any of these water bodies could alter water quality in the receiving waters. There could therefore be direct effects on physico-chemistry and biology. INNS risks would be managed according to the Outline INNS Biosecurity Plan (Document reference 7.10, DCO Volume 7). INNS issues are therefore scoped out.	Yes (water quality, ecology and Protected Areas relying on water quality in downstream water bodies)
Release from the Eastney LSO	O1 Changes to existing release at Eastney LSO	Solent (GB650705150000) Isle of Wight East (GB650705530000)	There is the potential that the changes to the Eastney LSO release could impact on water	Yes (water quality, ecology and Protected Areas relying

Component	Activity	Water body(s)	Summary of scoping	Stage 3 required
	associated with water recycling		quality and therefore marine ecology.	on water quality)

10.2 Summary of Stage 3: Impact assessment

10.2.1 Table 10-2 summarises the output of the Stage 3: Impact assessment.

10.2.2 The implementation of control measures set out in the OEMP (Document reference 7.7, DCO Volume 7) during operation means the proposed activities would not cause non-temporary adverse effects (i.e. effects that are not permanent, but could last for the duration or beyond the current River Basin Planning Cycle) to the status of any of the lake, river, transitional or coastal water bodies that have been subject to Stage 3 impact assessment. Operational activities would not prevent water body status objectives being achieved in the future. The Proposed Development is therefore considered to be compliant with WER requirements.

Table 10-2 Summary of Impact assessment: Stage 3

Component	Activity	Water body(s)	Summary of impact assessment
Use of Havant Thicket Reservoir for the storage of recycled water	O1 Use of Havant Thicket Reservoir for storage of recycled water	Havant Thicket Reservoir (no ID number) Hermitage Stream GB107042016370) Langstone Harbour (GB580705130000) and Langstone Oysterbeds (GB510070073000)	The design of primary mitigation measures to reduce phosphorus inputs from the WRP into Havant Thicket Reservoir mean that a change in status of the reservoir would not occur with the introduction of recycled water. Reduced phosphorus inputs to the reservoir also mean that BOD increases would not affect downstream water bodies that would receive compensatory flows.
Release from the Eastney Long Sea Outfall	O1 Changes to existing release at Eastney LSO	Solent (GB650705150000) Isle of Wight East (GB650705530000)	Changes to the water quality of the two water bodies scoped in for assessment are not considered to be sufficient to affect water body status. Therefore no effects on biological quality elements or the Ryde Shellfish Water (Protected Area) are predicted.

References

[1] Environment Agency, “Environmental Quality Standards Directive (EQSD) list for WFD assessments,” 2016. [Online]. Available: https://www.gov.uk/government/publications/list-of-chemicals-for-water-framework-directive-assessments/environmental-quality-standards-directive-eqsd-list-for-wfd-assessments. [Accessed April 2024].

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[3] Environment Agency, “Clearing the Waters for All,” 2023. [Online]. Available: https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters.

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[7] Environment Agency, “Catchment Data Explorer,” 2022. [Online]. Available: https://environment.data.gov.uk/catchment-planning/.

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[9] Atkins, “Havant Thicket Reservoir Project Environmental Statement - Appendix A15.3 Water Quality Modelling Report,” 2020.

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[11] Future Water MJJV Ltd, *Havant Thicket Reservoir: Water Quality Modelling of Recycled Water Inputs,* Future Water MJJV Ltd, 2024.

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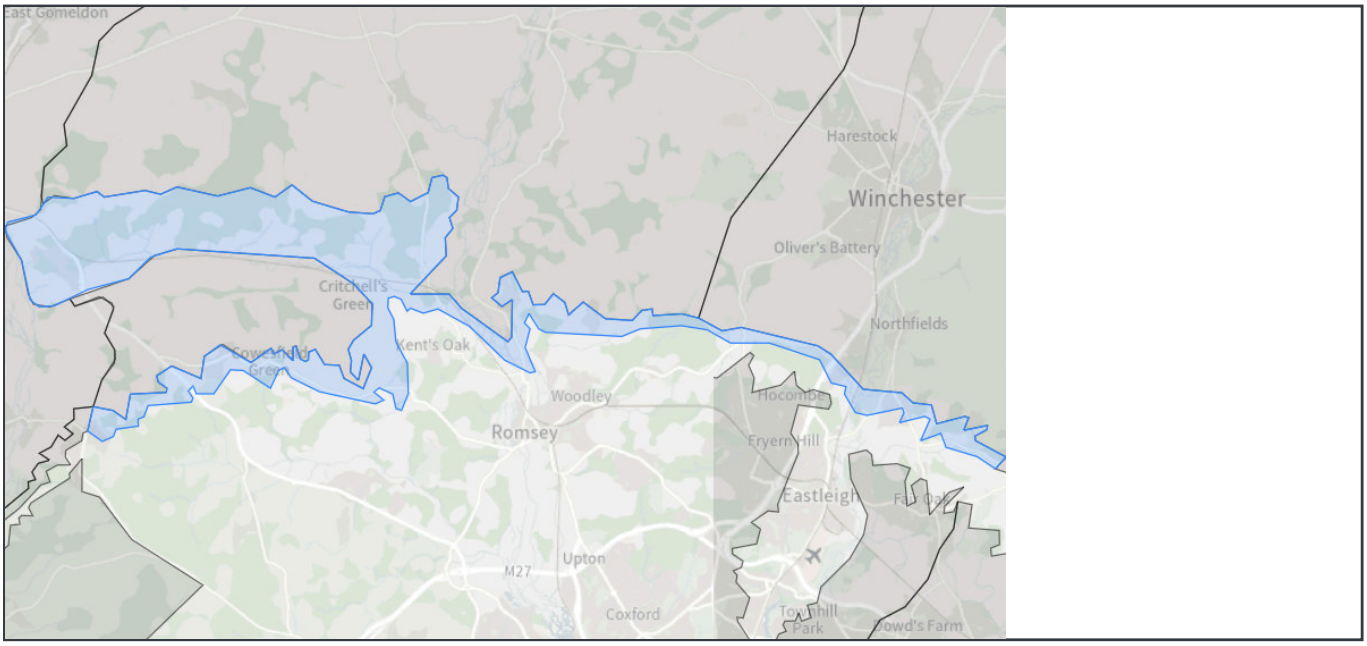
Annex A Water bodies relevant to this WER Compliance Assessment.

Central Hants Lambeth Group Water Body

Good overall status



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Attributes

Water Body ID	Water Body Type	Hydromorphological designation

NGR	Surveillance Water Body	Surface area
SU3852225024	No	67.828 km2

Groundwater area
6782.811 ha

Classifications

Time period: Cycle 3

Classification Item	2019
Overall Water Body	Good
Quantitative	Good
Quantitative Status element	Good
Quantitative Dependent Surface Water Body Status	Good
Quantitative GWDTEs test	Good
Quantitative Saline Intrusion	Good
Quantitative Water Balance	Good
Chemical (GW)	Good
Chemical Status element	Good
Chemical Dependent Surface Water Body Status	Good
Chemical Drinking Water Protected Area	Good
Chemical GWDTEs test	Good
Chemical Saline Intrusion	Good
General Chemical Test	Good
Supporting elements (Groundwater)	
Prevent and Limit Objective	Active
Trend Assessment	No trend

Why do all water bodies have a chemical status of fail?

Investigations into classification status

No data to show

Reasons for not achieving good (RNAG) and reasons for deterioration (RFD)

All reasons (RFDs and RNAGs) attributed to the classification elements in this water body.

Reason Type	SWMI	Activity	Category	Classification Element	More information

Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons for deterioration.

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and rural land management	0	0	0	0	0	0	0
Industry	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0
Navigation	0	0	0	0	0	0	0
Urban and transport	0	0	0	0	0	0	0
Water Industry	0	0	0	0	0	0	0
Local & central government	0	0	0	0	0	0	0
Domestic general public	0	0	0	0	0	0	0
Recreation	0	0	0	0	0	0	0
Waste treatment and disposal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
No sector responsible	0	0	0	0	0	0	0
Sector under investigation	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Objectives

Classification Item	Status	Year	Reasons
Overall Water Body	Good	2015	
Quantitative	Good	2015	
Quantitative Status element	Good	2015	
Quantitative Dependent Surface Water Body Status	Good	2015	
Quantitative GWDTEs test	Good	2015	
Quantitative Saline Intrusion	Good	2015	
Quantitative Water Balance	Good	2015	
Chemical (GW)	Good	2015	
Chemical Status element	Good	2015	

Classification Item	Status	Year	Reasons
Chemical GWDTEs test	**Good**	2015	
Chemical Saline Intrusion	**Good**	2015	
General Chemical Test	**Good**	2015	

Protected areas

PA Name	Id	Directive	More information
River Avon	UK0013016	Special Area of Conservation	Natural England
South Wessex	G151	Nitrates Directive	
R. Blackwater NVZ	S687	Nitrates Directive	
Hamble Estuary Eutrophic NVZ (TraC)	ET3	Nitrates Directive	
Hampshire Chalk	G143	Nitrates Directive	
Whiteparish Trib NVZ	S526	Nitrates Directive	
Bow Lake NVZ	S811	Nitrates Directive	
River Itchen	UK0012599	Special Area of Conservation	Natural England
Central Hants Lambeth Group	UKGB40702G503800	Drinking Water Protected Area	

Monitoring sites which have been used to classify this water body

Shows which sites were used for classification for which years within each cycle.

Monitoring Site	Cycle 1	Cycle 2	Cycle 3

Upstream water bodies

Downstream water bodies

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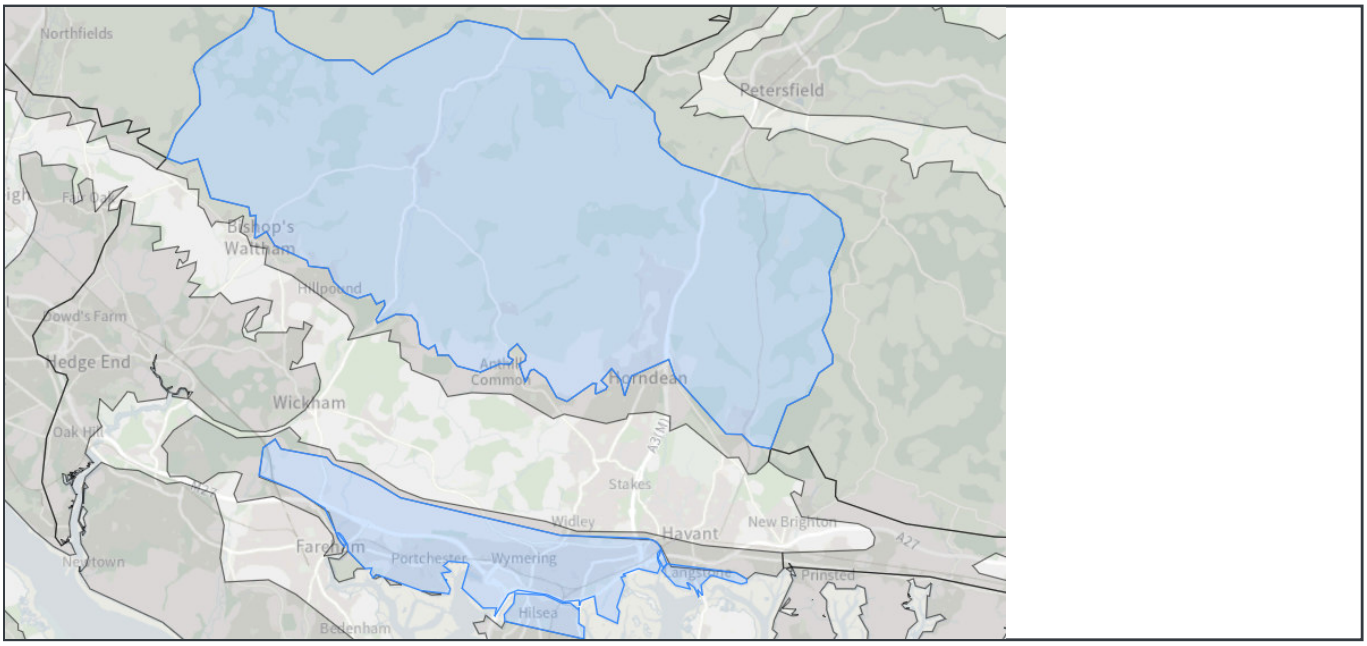
East Hants Chalk Water Body

Poor overall status



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Attributes

Water Body ID	Water Body Type	Hydromorphological designation

NGR	Surveillance Water Body	Surface area
SU7047805738	No	265.641 km2

Groundwater area
26564.094 ha

Classifications

Time period: Cycle 3

Classification Item	2019
Overall Water Body	**Poor**
Quantitative	**Poor**
Quantitative Status element	**Poor**
Quantitative Dependent Surface Water Body Status	**Poor**
Quantitative GWDTEs test	**Good**
Quantitative Saline Intrusion	**Good**
Quantitative Water Balance	**Good**
Chemical (GW)	**Poor**
Chemical Status element	**Poor**
Chemical Dependent Surface Water Body Status	**Good**
Chemical Drinking Water Protected Area	**Poor**
Chemical GWDTEs test	**Good**
Chemical Saline Intrusion	**Good**
General Chemical Test	**Poor**
Supporting elements (Groundwater)	
Prevent and Limit Objective	**Active**
Trend Assessment	**Upward trend**

Why do all water bodies have a chemical status of fail?

Investigations into classification status

Classification Element	Cycle	Year	Status	Outcome
Trend Assessment	2	2015	Upward trend	
General Chemical Test	2	2015	Poor	
Chemical Drinking Water Protected Area	2	2015	Poor	
Quantitative Dependent Surface Water Body Status	2	2015	Poor	
Quantitative Water Balance	2	2015	Poor	

Reasons for not achieving good (RNAG) and reasons for

Reason Type	SWMI	Activity	Category	Classification Element	More information
RNAG	Flow	Groundwater abstraction	Water Industry	Quantitative Dependent Surface Water Body Status	Details
RNAG	Diffuse source	Poor nutrient management	Agriculture and rural land management	General Chemical Test	Details
RNAG	Diffuse source	Poor nutrient management	Agriculture and rural land management	Chemical Drinking Water Protected Area	Details
RNAG	Diffuse source	Poor nutrient management	Agriculture and rural land management	Trend Assessment	Details

Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons for deterioration.

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and rural land management	0	0	0	0	0	2	0
Industry	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0
Navigation	0	0	0	0	0	0	0
Urban and transport	0	0	0	0	0	0	0
Water Industry	0	0	0	1	0	0	0
Local & central government	0	0	0	0	0	0	0
Domestic general public	0	0	0	0	0	0	0
Recreation	0	0	0	0	0	0	0
Waste treatment and disposal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
No sector responsible	0	0	0	0	0	0	0
Sector under investigation	0	0	0	0	0	0	0
Total	0	0	0	1	0	2	0

Objectives

Classification Item	Status	Year	Reasons
Overall Water Body	**Good**	2060	Disproportionately expensive: Disproportionate burdens; Natural conditions: Groundwater status recovery time
Quantitative	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Quantitative Status element	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Quantitative Dependent Surface Water Body Status	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Quantitative GWDTEs test	**Good**	2015	
Quantitative Saline Intrusion	**Good**	2015	
Quantitative Water Balance	**Good**	2021	Disproportionately expensive: Disproportionate burdens
Chemical (GW)	**Good**	2060	Natural conditions: Groundwater status recovery time
Chemical Status element	**Good**	2060	Natural conditions: Groundwater status recovery time
Chemical Dependent Surface Water Body Status	**Good**	2015	
Chemical Drinking Water Protected Area	**Good**	2060	Natural conditions: Groundwater status recovery time
Chemical GWDTEs test	**Good**	2015	
Chemical Saline Intrusion	**Good**	2015	
General Chemical Test	**Good**	2060	Natural conditions: Groundwater status recovery time

Protected areas

PA Name	Id	Directive	More information
Hamble Estuary Eutrophic NVZ (TraC)	ET3	Nitrates Directive	
Hampshire Chalk	G143	Nitrates Directive	
Fareham	G58	Nitrates Directive	
Chichester,Langstone and Portsmouth Harbours Eutrophic NVZ (TraC)	ET2	Nitrates Directive	
Sussex Chalk	G56	Nitrates Directive	
Chichester And Langstone Harbours	UK9011011	Special Protection Area	Natural England
Solent Maritime	UK0030059	Special Area of Conservation	Natural England
R. Meon NVZ	S527	Nitrates Directive	
Chichester And Langstone Harbours	UK11013	Ramsar Site	Natural England
Upper Hamble NVZ	S810	Nitrates Directive	

PA Name	Id	Directive	More information
Solent & Isle Of Wight Lagoons	UK0017073	Special Area of Conservation	Natural England
Bow Lake NVZ	S811	Nitrates Directive	
WARBLINGTON STREAM - NO.2 NVZ	S667	Nitrates Directive	
Fareham	GWSGZ0145	Safeguard Zone	
Portsmouth Harbour	UK11055	Ramsar Site	Natural England
North Warnford	GWSGZ0308	Safeguard Zone	
Portsmouth Harbour	UK9011051	Special Protection Area	Natural England
Bishops Waltham	GWSGZ0309	Safeguard Zone	
Clanfield	GWSGZ0138	Safeguard Zone	
Catherington South	GWSGZ0144	Safeguard Zone	
East Hants Chalk	UKGB40701G502700	Drinking Water Protected Area	

Monitoring sites which have been used to classify this water body

Shows which sites were used for classification for which years within each cycle.

Monitoring Site	Cycle 1	Cycle 2	Cycle 3

Upstream water bodies

Downstream water bodies

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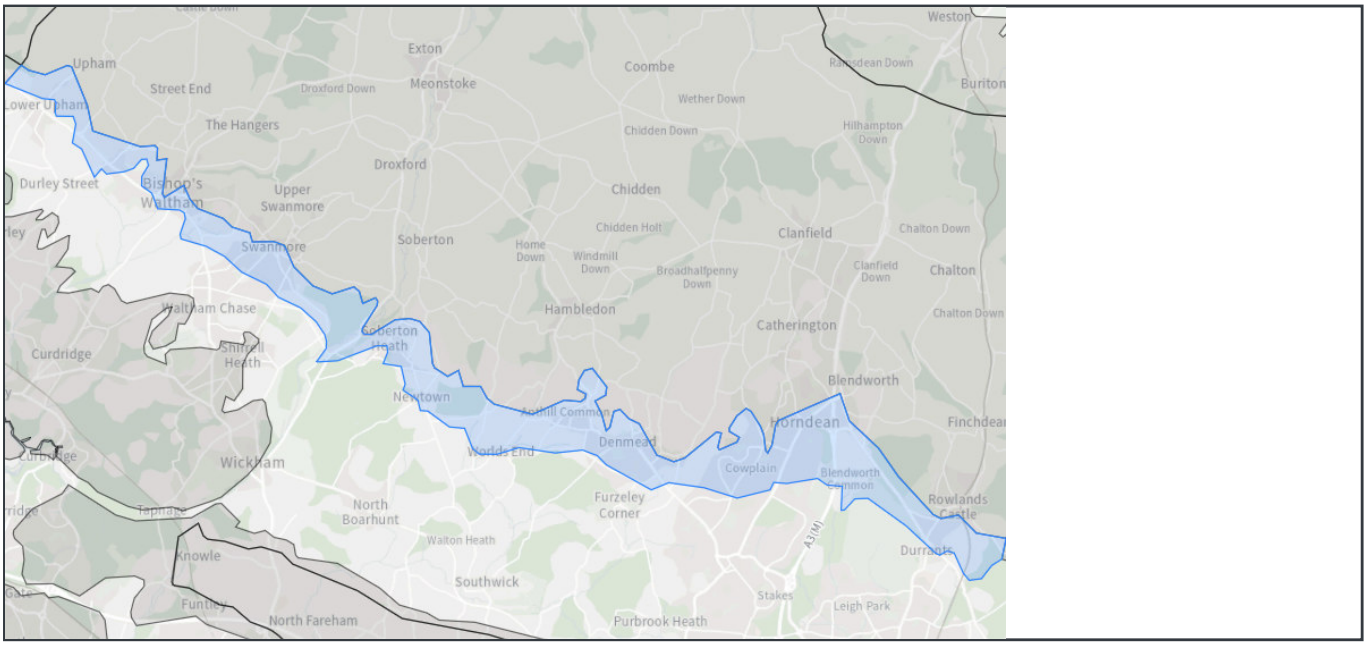
East Hants Lambeth Group Water Body

Good overall status



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Attributes

Water Body ID	Water Body Type	Hydromorphological designation

NGR	Groundwater area	Surface area
SU5923714708	2493.806 ha	24.938 km2

Surveillance Water Body
No

Classifications

Time period: Cycle 3

Classification Item	2019
Overall Water Body	**Good**
Quantitative	**Good**
Quantitative Status element	**Good**
Quantitative Dependent Surface Water Body Status	**Good**
Quantitative GWDTEs test	**Good**
Quantitative Saline Intrusion	**Good**
Quantitative Water Balance	**Good**
Chemical (GW)	**Good**
Chemical Status element	**Good**
Chemical Dependent Surface Water Body Status	**Good**
Chemical Drinking Water Protected Area	**Good**
Chemical GWDTEs test	**Good**
Chemical Saline Intrusion	**Good**
General Chemical Test	**Good**
Supporting elements (Groundwater)	
Prevent and Limit Objective	**Active**
Trend Assessment	**No trend**

Why do all water bodies have a chemical status of fail?

Investigations into classification status

Classification Element	Cycle	Year	Status	Outcome
Quantitative Dependent Surface Water Body Status	2	2015	Poor	

Reasons for not achieving good (RNAG) and reasons for deterioration (RFD)

All reasons (RFDs and RNAGs) attributed to the classification elements in this water body.

Reason Type	SWMI	Activity	Category	Classification Element	More information

Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons for deterioration.

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and rural land management	0	0	0	0	0	0	0
Industry	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0
Navigation	0	0	0	0	0	0	0
Urban and transport	0	0	0	0	0	0	0
Water Industry	0	0	0	0	0	0	0
Local & central government	0	0	0	0	0	0	0
Domestic general public	0	0	0	0	0	0	0
Recreation	0	0	0	0	0	0	0
Waste treatment and disposal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
No sector responsible	0	0	0	0	0	0	0
Sector under investigation	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Objectives

Classification Item	Status	Year	Reasons
Overall Water Body	**Good**	2021	Disproportionately expensive: Disproportionate burdens
Quantitative	**Good**	2021	Disproportionately expensive: Disproportionate burdens
Quantitative Status element	**Good**	2021	Disproportionately expensive: Disproportionate burdens
Quantitative Dependent Surface Water Body Status	**Good**	2021	Disproportionately expensive: Disproportionate burdens
Quantitative GWDTEs test	**Good**	2015	
Quantitative Saline Intrusion	**Good**	2015	

Classification Item	Status	Year	Reasons
Chemical Status element	**Good**	2015	
Chemical Dependent Surface Water Body Status	**Good**	2015	
Chemical Drinking Water Protected Area	**Good**	2015	
Chemical GWDTEs test	**Good**	2015	
Chemical Saline Intrusion	**Good**	2015	
General Chemical Test	**Good**	2015	

Protected areas

PA Name	Id	Directive	More information
Hamble Estuary Eutrophic NVZ (TraC)	ET3	Nitrates Directive	
Hampshire Chalk	G143	Nitrates Directive	
Chichester,Langstone and Portsmouth Harbours Eutrophic NVZ (TraC)	ET2	Nitrates Directive	
Sussex Chalk	G56	Nitrates Directive	
R. Meon NVZ	S527	Nitrates Directive	
Upper Hamble NVZ	S810	Nitrates Directive	
East Hants Lambeth Group	UKGB40702G500800	Drinking Water Protected Area	
Bow Lake NVZ	S811	Nitrates Directive	

Monitoring sites which have been used to classify this water body

Shows which sites were used for classification for which years within each cycle.

Monitoring Site	Cycle 1	Cycle 2	Cycle 3

Upstream water bodies

Downstream water bodies

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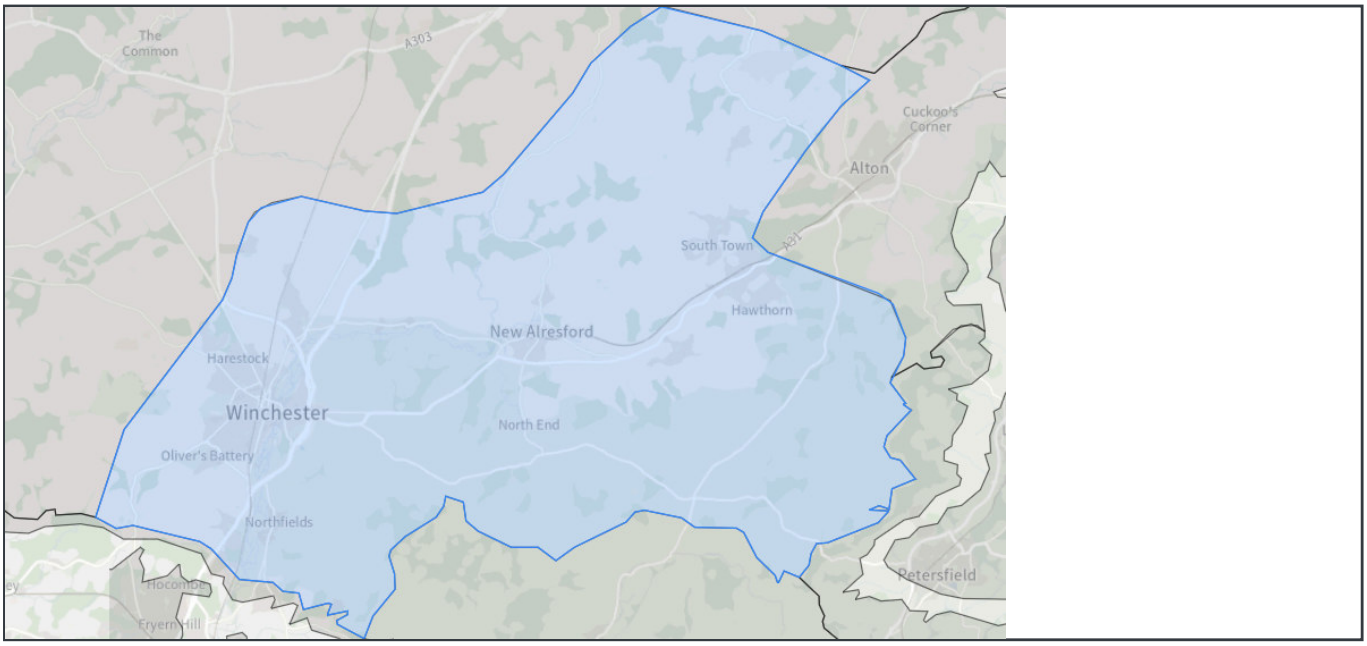
River Itchen Chalk Water Body

Poor overall status



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Attributes

Water Body ID	Water Body Type	Hydromorphological designation

NGR	Groundwater area	Surface area
SU5931233002	45340.541 ha	453.405 km2

Surveillance Water Body
No

Classifications

Time period: Cycle 3

Classification Item	2019
Overall Water Body	**Poor**
Quantitative	**Poor**
Quantitative Status element	**Poor**
Quantitative Dependent Surface Water Body Status	**Poor**
Quantitative GWDTEs test	**Good**
Quantitative Saline Intrusion	**Good**
Quantitative Water Balance	**Good**
Chemical (GW)	**Poor**
Chemical Status element	**Poor**
Chemical Dependent Surface Water Body Status	**Good**
Chemical Drinking Water Protected Area	**Poor**
Chemical GWDTEs test	**Good**
Chemical Saline Intrusion	**Good**
General Chemical Test	**Poor**
Supporting elements (Groundwater)	
Prevent and Limit Objective	**Active**
Trend Assessment	**Upward trend**

Why do all water bodies have a chemical status of fail?

Investigations into classification status

Classification Element	Cycle	Year	Status	Outcome
Trend Assessment	2	2015	Upward trend	
General Chemical Test	2	2015	Poor	

Reasons for not achieving good (RNAG) and reasons for deterioration (RFD)

All reasons (RFDs and RNAGs) attributed to the classification elements in this water body.

Reason Type	SWMI	Activity	Category	Classification Element	More information
RNAG	Flow	Groundwater abstraction	Water Industry	Quantitative Dependent Surface Water Body Status	Details
RNAG	Diffuse source	Poor nutrient management	Agriculture and rural land management	Chemical Drinking Water Protected Area	Details
RNAG	Diffuse source	Poor nutrient management	Agriculture and rural land management	General Chemical Test	Details
RNAG	Diffuse source	Poor nutrient management	Agriculture and rural land management	Trend Assessment	Details

Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons for deterioration.

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and rural land management	0	0	0	0	0	2	0
Industry	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0
Navigation	0	0	0	0	0	0	0
Urban and transport	0	0	0	0	0	0	0
Water Industry	0	0	0	0	0	0	0
Local & central government	0	0	0	0	0	0	0
Domestic general public	0	0	0	0	0	0	0
Recreation	0	0	0	0	0	0	0
Waste treatment and disposal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
No sector responsible	0	0	0	0	0	0	0
Sector under investigation	0	0	0	0	0	0	0
Total	0	0	0	0	0	2	0

Objectives

Classification Item	Status	Year	Reasons
Overall Water Body	**Good**	2060	Disproportionately expensive: Disproportionate burdens; Natural conditions: Groundwater status recovery time
Quantitative	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Quantitative Status element	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Quantitative Dependent Surface Water Body Status	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Quantitative GWDTEs test	**Good**	2015	
Quantitative Saline Intrusion	**Good**	2015	
Quantitative Water Balance	**Good**	2021	Disproportionately expensive: Disproportionate burdens
Chemical (GW)	**Good**	2060	Natural conditions: Groundwater status recovery time
Chemical Status element	**Good**	2060	Natural conditions: Groundwater status recovery time
Chemical Dependent Surface Water Body Status	**Good**	2015	
Chemical Drinking Water Protected Area	**Good**	2060	Natural conditions: Groundwater status recovery time
Chemical GWDTEs test	**Good**	2015	
Chemical Saline Intrusion	**Good**	2015	
General Chemical Test	**Good**	2060	Natural conditions: Groundwater status recovery time

Protected areas

PA Name	Id	Directive	More information
Hamble Estuary Eutrophic NVZ (TraC)	ET3	Nitrates Directive	
North Wey (Alton to Tilford) NVZ	S678	Nitrates Directive	
Kingsclere and Greywell	G145	Nitrates Directive	
Hampshire Chalk	G143	Nitrates Directive	
R. Meon NVZ	S527	Nitrates Directive	
Upper Hamble NVZ	S810	Nitrates Directive	
River Itchen Chalk	UKGB40701G505000	Drinking Water Protected Area	
Nun's Walk Stream NVZ	S812	Nitrates Directive	
Bow Lake NVZ	S811	Nitrates Directive	
River Itchen	UK0012599	Special Area of Conservation	Natural England
TWYFORD	GWSGZ0153	Safeguard Zone	
Winchester	GWSGZ0304	Safeguard Zone	

Monitoring sites which have been used to classify this water body

Shows which sites were used for classification for which years within each cycle.

Monitoring Site	Cycle 1	Cycle 2	Cycle 3

Upstream water bodies

Downstream water bodies

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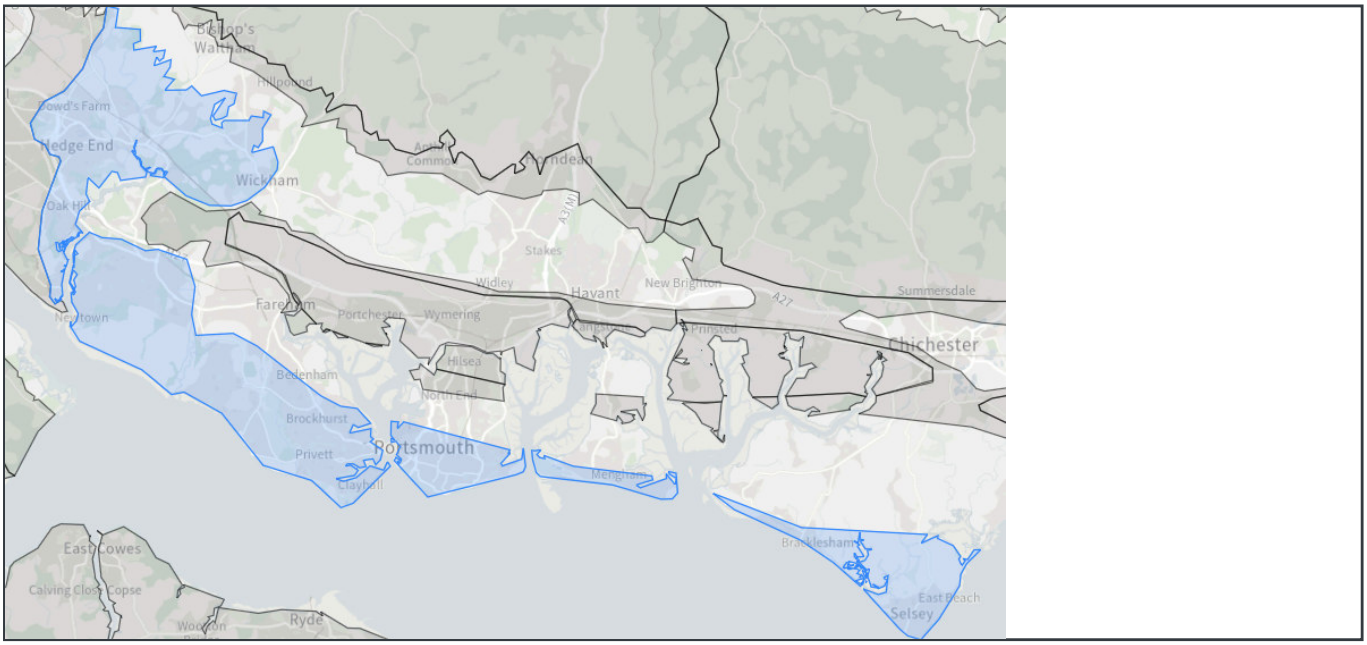
South East Hants Bracklesham Group Water Body

Poor overall status



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Attributes

GB40702G503000	Groundwater Body	not applicable
NGR SU5459012480	**Surveillance Water Body** No	**Surface area** 146.241 km2
Groundwater area 14624.148 ha		

Classifications

Time period: Cycle 3

Classification Item	2019
Overall Water Body	**Poor**
Quantitative	**Good**
Quantitative Status element	**Good**
Quantitative Dependent Surface Water Body Status	**Good**
Quantitative GWDTEs test	**Good**
Quantitative Saline Intrusion	**Good**
Quantitative Water Balance	**Good**
Chemical (GW)	**Poor**
Chemical Status element	**Poor**
Chemical Dependent Surface Water Body Status	**Poor**
Chemical Drinking Water Protected Area	**Good**
Chemical GWDTEs test	**Good**
Chemical Saline Intrusion	**Good**
General Chemical Test	**Good**
Supporting elements (Groundwater)	
Prevent and Limit Objective	**Active**
Trend Assessment	**No trend**

Why do all water bodies have a chemical status of fail?

Investigations into classification status

Classification Element	Cycle	Year	Status	Outcome
Chemical Dependent Surface Water Body Status	2	2015	Poor	

Reasons for not achieving good (RNAG) and reasons for deterioration (RFD)

All reasons (RFDs and RNAGs) attributed to the classification elements in this water body.

Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons for deterioration.

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and rural land management	0	0	0	0	0	0	0
Industry	0	0	1	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0
Navigation	0	0	0	0	0	0	0
Urban and transport	0	0	0	0	0	0	0
Water Industry	0	0	0	0	0	0	0
Local & central government	0	0	0	0	0	0	0
Domestic general public	0	0	0	0	0	0	0
Recreation	0	0	0	0	0	0	0
Waste treatment and disposal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
No sector responsible	0	0	0	0	0	0	0
Sector under investigation	0	0	0	0	0	0	0
Total	0	0	1	0	0	0	0

Objectives

Classification Item	Status	Year	Reasons
Overall Water Body	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Quantitative	**Good**	2015	
Quantitative Status element	**Good**	2015	
Quantitative Dependent Surface Water Body Status	**Good**	2015	
Quantitative GWDTEs test	**Good**	2015	
Quantitative Saline Intrusion	**Good**	2015	
Quantitative Water Balance	**Good**	2015	
Chemical (GW)		2027 - Low	Disproportionately expensive: Disproportionate

Classification Item	Status	Year	Reasons
Chemical Status element	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Chemical Dependent Surface Water Body Status	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Chemical Drinking Water Protected Area	**Good**	2015	
Chemical GWDTEs test	**Good**	2015	
Chemical Saline Intrusion	**Good**	2015	
General Chemical Test	**Good**	2015	

Protected areas

PA Name	Id	Directive	More information
Hamble Estuary Eutrophic NVZ (TraC)	ET3	Nitrates Directive	
Chichester,Langstone and Portsmouth Harbours Eutrophic NVZ (TraC)	ET2	Nitrates Directive	
Chichester And Langstone Harbours	UK9011011	Special Protection Area	Natural England
Solent Maritime	UK0030059	Special Area of Conservation	Natural England
Chichester And Langstone Harbours	UK11013	Ramsar Site	Natural England
Solent And Dorset Coast	UK9020330	Special Protection Area	Natural England
Solent & Southampton Water	UK9011061	Special Protection Area	Natural England
Solent & Southampton Water	UK11063	Ramsar Site	Natural England
Solent & Isle Of Wight Lagoons	UK0017073	Special Area of Conservation	Natural England
Pagham Harbour	UK9012041	Special Protection Area	Natural England
Pagham Harbour	UK11052	Ramsar Site	Natural England
Portsmouth Harbour	UK11055	Ramsar Site	Natural England
Portsmouth Harbour	UK9011051	Special Protection Area	Natural England
Broad Rife NVZ	S516	Nitrates Directive	
BROAD RIFER TO CHICHESTER HARBOUR NVZ	S666	Nitrates Directive	
South East Hants Bracklesham Group	UKGB40702G503000	Drinking Water Protected Area	

Monitoring sites which have been used to classify this water body

Shows which sites were used for classification for which years within each cycle.

Monitoring Site	Cycle 1	Cycle 2	Cycle 3

Upstream water bodies

Downstream water bodies

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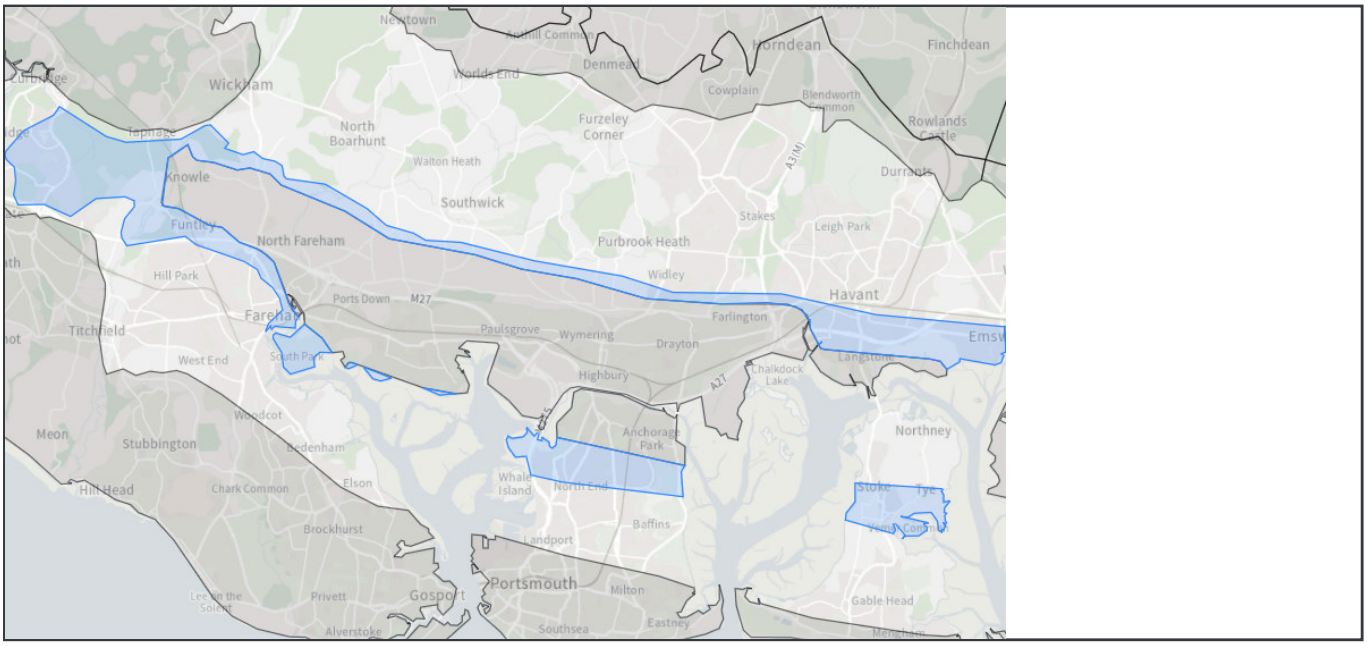
South Hants Lambeth Group Water Body

Good overall status



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Attributes

Water Body ID	Water Body Type	Hydromorphological designation

NGR	Surface area	Surveillance Water Body
SU5990705044	23.428 km2	No

Groundwater area
2342.847 ha

Classifications

Time period: Cycle 3

Classification Item	2019
Overall Water Body	Good
Quantitative	Good
Quantitative Status element	Good
Quantitative Dependent Surface Water Body Status	Good
Quantitative GWDTEs test	Good
Quantitative Saline Intrusion	Good
Quantitative Water Balance	Good
Chemical (GW)	Good
Chemical Status element	Good
Chemical Dependent Surface Water Body Status	Good
Chemical Drinking Water Protected Area	Good
Chemical GWDTEs test	Good
Chemical Saline Intrusion	Good
General Chemical Test	Good
Supporting elements (Groundwater)	
Prevent and Limit Objective	Active
Trend Assessment	No trend

Why do all water bodies have a chemical status of fail?

Investigations into classification status

No data to show

Reasons for not achieving good (RNAG) and reasons for deterioration (RFD)

All reasons (RFDs and RNAGs) attributed to the classification elements in this water body.

Reason Type	SWMI	Activity	Category	Classification Element	More information

Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons for deterioration.

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and rural land management	0	0	0	0	0	0	0
Industry	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0
Navigation	0	0	0	0	0	0	0
Urban and transport	0	0	0	0	0	0	0
Water Industry	0	0	0	0	0	0	0
Local & central government	0	0	0	0	0	0	0
Domestic general public	0	0	0	0	0	0	0
Recreation	0	0	0	0	0	0	0
Waste treatment and disposal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
No sector responsible	0	0	0	0	0	0	0
Sector under investigation	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Objectives

Classification Item	Status	Year	Reasons
Overall Water Body	Good	2015	
Quantitative	Good	2015	
Quantitative Status element	Good	2015	
Quantitative Dependent Surface Water Body Status	Good	2015	
Quantitative GWDTEs test	Good	2015	
Quantitative Saline Intrusion	Good	2015	
Quantitative Water Balance	Good	2015	
Chemical (GW)	Good	2015	
Chemical Status element	Good	2015	

Classification Item	Status	Year	Reasons
Chemical GWDTEs test	**Good**	2015	
Chemical Saline Intrusion	**Good**	2015	
General Chemical Test	**Good**	2015	

Protected areas

PA Name	Id	Directive	More information
Hamble Estuary Eutrophic NVZ (TraC)	ET3	Nitrates Directive	
Fareham	G58	Nitrates Directive	
Chichester,Langstone and Portsmouth Harbours Eutrophic NVZ (TraC)	ET2	Nitrates Directive	
Chichester And Langstone Harbours	UK9011011	Special Protection Area	Natural England
Solent Maritime	UK0030059	Special Area of Conservation	Natural England
Chichester And Langstone Harbours	UK11013	Ramsar Site	Natural England
Solent And Dorset Coast	UK9020330	Special Protection Area	Natural England
WARBLINGTON STREAM - NO.2 NVZ	S667	Nitrates Directive	
Portsmouth Harbour	UK11055	Ramsar Site	Natural England
Portsmouth Harbour	UK9011051	Special Protection Area	Natural England
South Hants Lambeth Group	UKGB40702G503700	Drinking Water Protected Area	

Monitoring sites which have been used to classify this water body

Shows which sites were used for classification for which years within each cycle.

Monitoring Site	Cycle 1	Cycle 2	Cycle 3

Upstream water bodies

Downstream water bodies

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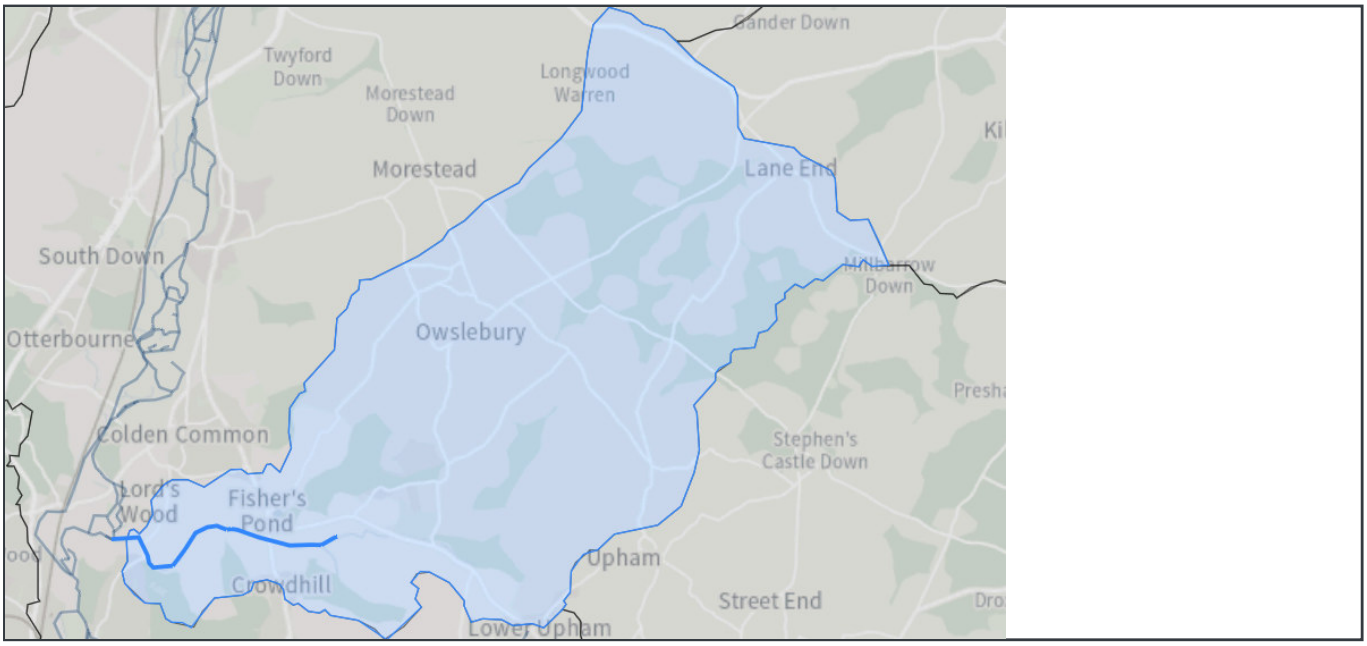
Bow Lake Water Body

Bad ecological status



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Attributes

Water Body ID	Water Body Type	Hydromorphological designation

NGR	Catchment area	Length
SU4797020826	3771.54 ha	3.82 km

Catchment area	Surveillance Water Body
37.715 km2	Yes

Classifications

Time period: Cycle 3

Classification Item	2019	2022
Ecological	Bad	Bad
Biological quality elements	Bad	Bad
Fish	Bad	Bad
Invertebrates	**Moderate**	**Moderate**
Macrophytes and Phytobenthos Combined	**Good**	**Good**
Phytobenthos Sub Element	**Good**	**Good**
Physico-chemical quality elements	**Moderate**	**Good**
Acid Neutralising Capacity	**High**	**High**
Ammonia (Phys-Chem)	**High**	**Good**
Dissolved oxygen	**Poor**	**Good**
Phosphate	**Good**	**Good**
Temperature	**High**	**High**
pH	**High**	**High**
Hydromorphological Supporting Elements	**Not high**	**Not high**
Hydrological Regime	**Does not support good**	**Does not support good**
Morphology	**Not high**	**Not high**
Specific pollutants	**High**	**High**
Chlorothalonil	**High**	**High**
Chromium (VI)	**High**	**High**
Copper	**High**	**High**
Iron	**High**	**High**
Manganese	**High**	**High**
Pendimethalin	**High**	**High**
Zinc	**High**	**High**
Chemical	Fail	**Does not require assessment**
Priority hazardous substances	Fail	**Does not require assessment**
Benzo(a)pyrene	**Good**	
Benzo(b)fluoranthene	**Good**	
Benzo(g-h-i)perylene	Fail	
Benzo(k)fluoranthene	**Good**	
[illegible]	**Good**	

Classification Item	2019	2022
Heptachlor and cis-Heptachlor epoxide	Good	
Hexabromocyclododecane (HBCDD)	Good	
Hexachlorobenzene	Good	
Hexachlorobutadiene	Good	
Hexachlorocyclohexane	Good	
Mercury and Its Compounds	Fail	
Nonylphenol	Good	
Pentachlorobenzene	Good	
Perfluorooctane sulphonate (PFOS)	Fail	
Polybrominated diphenyl ethers (PBDE)	Fail	
Quinoxyfen	Good	
Tributyltin Compounds	Good	
Priority substances	Good	Does not require assessment
1,2-dichloroethane	Good	
Aclonifen	Good	
Alachlor	Good	
Benzene	Good	
Bifenox	Good	
Cybutryne	Good	
Cypermethrin (Priority)	Good	
Dichloromethane	Good	
Dichlorvos (Priority)	Good	
Fluoranthene	Good	
Lead and Its Compounds	Good	
Nickel and Its Compounds	Good	
Terbutryn	Good	
Trichloromethane	Good	
Other Pollutants	Good	Does not require assessment
Carbon Tetrachloride	Good	
DDT Total	Good	
para - para DDT	Good	

Why do all water bodies have a chemical status of fail?

Investigations into classification status

Classification Element	Cycle	Year	Status	Outcome
Fish	2	2014	Poor	Very certain there is a problem
Dissolved oxygen	2	2013	Poor	Very certain there is a problem
Fish	2	2015	Bad	Quite certain there is a problem
Dissolved oxygen	2	2014	Poor	Very certain there is a problem

Reasons for not achieving good (RNAG) and reasons for deterioration (RFD)

All reasons (RFDs and RNAGs) attributed to the classification elements in this water body.

Reason Type	SWMI	Activity	Category	Classification Element	More information
RFD	Diffuse source	Poor Livestock Management	Agriculture and rural land management	Ammonia (Phys-Chem)	Details
RFD	Point source	Trade/Industry discharge	Other	Ammonia (Phys-Chem)	Details
RFD	Diffuse source	Poor soil management	Agriculture and rural land management	Dissolved oxygen	Details
RFD	Physical modification	Commercial fin fisheries	Other	Dissolved oxygen	Details
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Mercury and Its Compounds	Details
RNAG	Suspect data	Not applicable	No sector responsible	Hydrological Regime	Details
RNAG	Diffuse source	Poor nutrient management	Agriculture and rural land management	Invertebrates	Details
RNAG	Unknown (pending investigation)	Unknown (pending investigation)	Sector under investigation	Benzo(g-h-i)perylene	Details
RNAG	Physical modification	Commercial fin fisheries	Other	Invertebrates	Details
RNAG	Unknown (pending investigation)	Unknown (pending investigation)	Sector under investigation	Perfluorooctane sulphonate (PFOS)	Details
RNAG	Physical modification	Barriers - ecological discontinuity	Agriculture and rural land management	Fish	Details
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Polybrominated diphenyl ethers (PBDE)	Details
RNAG	Diffuse source	Poor soil management	Agriculture and rural land management	Fish	Details
RFD	Point source	Trade/Industry discharge	Other	Dissolved oxygen	Details

Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons for deterioration.

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and rural land management	1	0	0	0	0	2	0

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Mining and quarrying	0	0	0	0	0	0	0
Navigation	0	0	0	0	0	0	0
Urban and transport	0	0	0	0	0	0	0
Water Industry	0	0	0	0	0	0	0
Local & central government	0	0	0	0	0	0	0
Domestic general public	0	0	0	0	0	0	0
Recreation	0	0	0	0	0	0	0
Waste treatment and disposal	0	0	0	0	0	0	0
Other	1	0	0	0	0	0	0
No sector responsible	0	0	0	0	0	0	0
Sector under investigation	0	0	0	0	0	0	0
Total	2	0	0	0	0	2	0

Objectives

Classification Item	Status	Year	Reasons
Ecological	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Biological quality elements	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Fish	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Invertebrates	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Macrophytes and Phytobenthos Combined	**Good**	2015	
Physico-chemical quality elements	**Good**	2015	Disproportionately expensive: Disproportionate burdens
Acid Neutralising Capacity	**Good**	2015	
Ammonia (Phys-Chem)	**Good**	2015	
Dissolved oxygen	**Good**	2015	
Phosphate	**Good**	2015	
Temperature	**Good**	2015	
pH	**Good**	2015	
Hydromorphological Supporting	**Not hi...h**	2015	

Classification Item	Status	Year	Reasons
Hydrological Regime	**Supports good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Supporting elements (Surface Water)	**Not assessed**	2015	
Specific pollutants	**High**	2015	
Chlorothalonil	**High**	2015	
Chromium (VI)	**High**	2015	
Copper	**High**	2015	
Iron	**High**	2015	
Manganese	**High**	2015	
Pendimethalin	**High**	2015	
Zinc	**High**	2015	
Chemical	**Good**	2063	Natural conditions: Chemical status recovery time; Technically infeasible: No known technical solution is available
Priority hazardous substances	**Good**	2063	Natural conditions: Chemical status recovery time; Technically infeasible: No known technical solution is available
Benzo(a)pyrene	**Good**	2015	
Benzo(b)fluoranthene	**Good**	2015	
Benzo(g-h-i)perylene	**Good**	2033	Technically infeasible: No known technical solution is available
Benzo(k)fluoranthene	**Good**	2015	
Cadmium and Its Compounds	**Good**	2015	
Dioxins and dioxin-like compounds	**Good**	2015	
Heptachlor and cis-Heptachlor epoxide	**Good**	2015	
Hexabromocyclododecane (HBCDD)	**Good**	2015	
Hexachlorobenzene	**Good**	2015	
Hexachlorobutadiene	**Good**	2015	
Hexachlorocyclohexane	**Good**	2015	
Mercury and Its Compounds	**Good**	2040	Natural conditions: Chemical status recovery time
Nonylphenol	**Good**	2015	
Pentachlorobenzene	**Good**	2015	
Perfluorooctane sulphonate (PFOS)	**Good**	2039	Technically infeasible: No known technical solution is available
Polybrominated diphenyl ethers (PBDE)	**Good**	2063	Natural conditions: Chemical status recovery time
Quinoxyfen	**Good**	2015	
Tributyltin Compounds	**Good**	2015	
Priority substances	**Good**	2015	
1,2-dichloroethane	**Good**	2015	
Aclonifen	**Good**	2015	
Alachlor	**Good**	2015	

Classification Item	Status	Year	Reasons
Cybutryne	**Good**	2015	
Cypermethrin (Priority)	**Good**	2015	
Dichloromethane	**Good**	2015	
Dichlorvos (Priority)	**Good**	2015	
Fluoranthene	**Good**	2015	
Lead and Its Compounds	**Good**	2015	
Nickel and Its Compounds	**Good**	2015	
Terbutryn	**Good**	2015	
Trichloromethane	**Good**	2015	
Other Pollutants	**Good**	2015	
Carbon Tetrachloride	**Good**	2015	
DDT Total	**Good**	2015	
para - para DDT	**Good**	2015	

Protected areas

PA Name	Id	Directive	More information
Hamble Estuary Eutrophic NVZ (TraC)	ET3	Nitrates Directive	
Bow Lake NVZ	S811	Nitrates Directive	

Monitoring sites which have been used to classify this water body

Shows which sites were used for classification for which years within each cycle.

Monitoring Site	Cycle 1	Cycle 2	Cycle 3
PARK HILLS WOOD STREAM PTS A&B G0006181	2012, 2013, 2014		
BOW LAKE STOKE COMMON G0003848	2009, 2012, 2010, 2013, 2011, 2014	2015, 2019, 2016, 2013, 2014	2019, 2022
BOW LAKE FISH FARM POINT B G0006178	2013, 2014		
LOW HILL FARM G0006078	2012, 2013, 2014		
ITCHEN/BOW LAKE/LEYLAND'S FARM/ 38950		2015, 2016	
BOW LAKE EQUESTRIAN CENTRE G0006077	2012, 2013, 2014		
ITCHEN/BOW LAKE/BOW LAKE FISH FARM/ 33950		2019, 2015, 2016, 2014	2019
STORE HOUSE GULLY, ROOKERY FM G0006179	2012, 2013, 2014		
R ALRE DROVE LANE G0003858	2012		
43300 43300	2014, 2013	2014, 2016, 2015, 2013, 2019	2019

Monitoring Site	Cycle 1	Cycle 2	Cycle 3
ITCHEN/BOW LAKE/UPSTREAM OF LEYLANDS FARM/ 50385		2019, 2015, 2016	2019

Upstream water bodies

Downstream water bodies

Itchen

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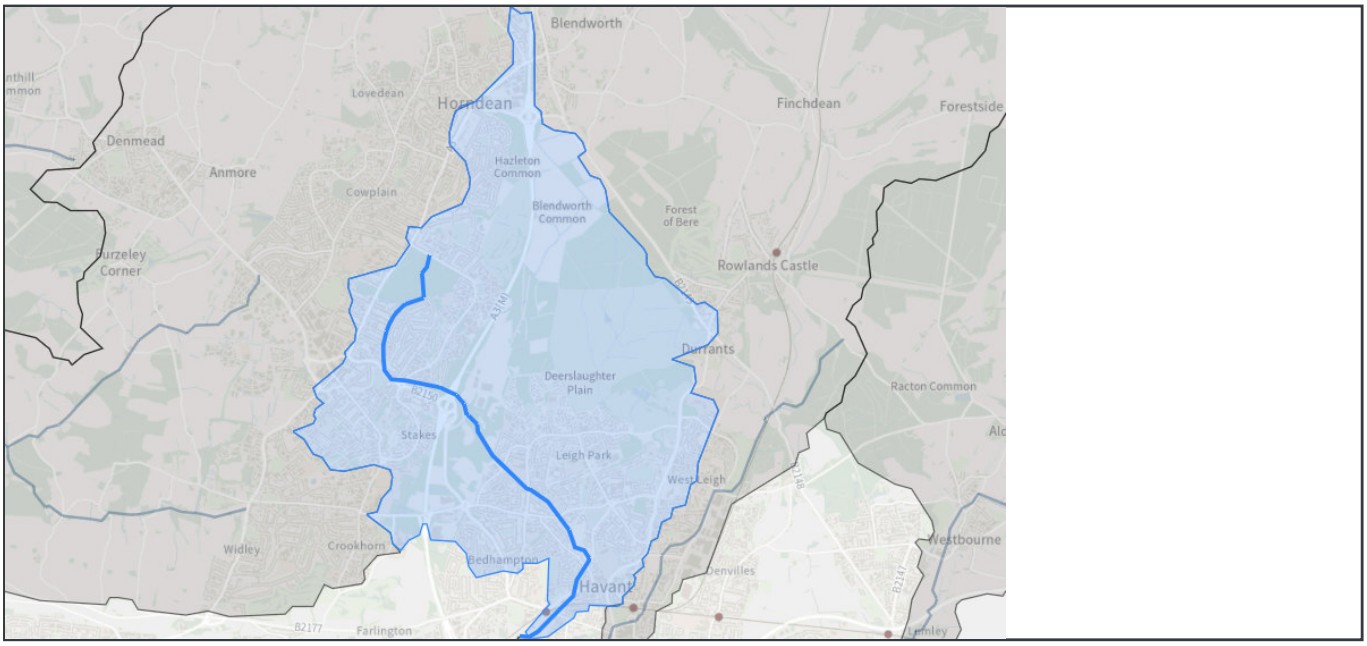
Hermitage Stream Water Body

Moderate ecological status



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Attributes

Water Body ID	Water Body Type	Hydromorphological designation

NGR	Catchment area	Length
SU6994708585	1864.793 ha	6.917 km

Catchment area	Surveillance Water Body
18.648 km2	No

Classifications

Time period: Cycle 3

Classification Item	2019	2022
Ecological	**Moderate**	**Moderate**
Biological quality elements	**Poor**	**Poor**
Fish	**Poor**	**Poor**
Invertebrates	**Moderate**	**Moderate**
Physico-chemical quality elements	**Moderate**	**Moderate**
Acid Neutralising Capacity	**High**	**High**
Ammonia (Phys-Chem)	**High**	**High**
Biochemical Oxygen Demand (BOD)	**High**	**High**
Dissolved oxygen	**High**	**High**
Phosphate	**Moderate**	**Moderate**
Temperature	**Good**	**High**
pH	**Moderate**	**Moderate**
Hydromorphological Supporting Elements	**Not high**	**Not high**
Hydrological Regime	**Supports good**	**Supports good**
Supporting elements (Surface Water)	**Moderate**	**Moderate**
Mitigation Measures Assessment	**Moderate or less**	**Moderate or less**
Specific pollutants	**High**	**High**
Copper	**High**	**High**
Triclosan	**High**	**High**
Chemical	Fail	**Does not require assessment**
Priority hazardous substances	Fail	**Does not require assessment**
Benzo(a)pyrene	**Good**	
Benzo(b)fluoranthene	**Good**	
Benzo(g-h-i)perylene	**Good**	
Benzo(k)fluoranthene	**Good**	
Dioxins and dioxin-like compounds	**Good**	
Heptachlor and cis-Heptachlor epoxide	**Good**	
Hexabromocyclododecane (HBCDD)	**Good**	
Hexachlorobenzene	**Good**	
Hexachlorobutadiene	**Good**	
Mercury and its Compounds	Fail	

Classification Item	2019	2022
Perfluorooctane sulphonate (PFOS)	**Good**	
Polybrominated diphenyl ethers (PBDE)	Fail	
Priority substances	**Good**	**Does not require assessment**
Cypermethrin (Priority)	**Good**	
Fluoranthene	**Good**	
Other Pollutants	**Does not require assessment**	**Does not require assessment**

Why do all water bodies have a chemical status of fail?

Investigations into classification status

Classification Element	Cycle	Year	Status	Outcome
Triclosan	2	2013	Moderate	Uncertain there is a problem
Nonylphenol	2	2013	Fail	Uncertain there is a problem
Hydrological Regime	2	2013	Does Not Support Good	Certain there is not a problem

Reasons for not achieving good (RNAG) and reasons for deterioration (RFD)

All reasons (RFDs and RNAGs) attributed to the classification elements in this water body.

Reason Type	SWMI	Activity	Category	Classification Element	More information
RNAG	Physical modification	Flood protection - structures	Urban and transport	Invertebrates	Details
RNAG	Point source	Misconnections	Domestic General Public	Invertebrates	Details
RNAG	Physical modification	Barriers - ecological discontinuity	Sector under investigation	Fish	Details
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Polybrominated diphenyl ethers (PBDE)	Details
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Mercury and Its Compounds	Details
RNAG	Point source	Misconnections	Domestic General Public	Phosphate	Details
RFD	Point source	Misconnections	Domestic General Public	pH	Details
RFD	Physical modification	Urbanisation - urban development	Urban and transport	pH	Details
RNAG	Physical modification	Urbanisation	Urban and transport	Mitigation Measures Assessment	Details
RNAG	Physical modification	Flood protection	Local and Central Government	Mitigation Measures Assessment	Details

Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons for deterioration.

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and rural land management	0	0	0	0	0	0	0
Industry	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0
Navigation	0	0	0	0	0	0	0
Urban and transport	2	0	0	0	0	0	0
Water Industry	0	0	0	0	0	0	0
Local & central government	1	0	0	0	0	0	0
Domestic general public	0	0	2	0	0	0	0
Recreation	0	0	0	0	0	0	0
Waste treatment and disposal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
No sector responsible	0	0	0	0	0	0	0
Sector under investigation	1	0	0	0	0	0	0
Total	4	0	2	0	0	0	0

Objectives

Classification Item	Status	Year	Reasons
Ecological	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Biological quality elements	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Fish	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Invertebrates	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Physico-chemical quality elements	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Acid Neutralising Capacity	**Good**	2015	

Classification Item	Status	Year	Reasons
Dissolved oxygen	**Good**	2015	
Phosphate	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Temperature	**Good**	2015	
pH	**Good**	2015	
Hydromorphological Supporting Elements	**Not high**	2015	
Hydrological Regime	**Supports good**	2015	
Supporting elements (Surface Water)	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Mitigation Measures Assessment	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Specific pollutants	**High**	2015	
Copper	**High**	2015	
Triclosan	**High**	2015	
Chemical	**Good**	2063	Natural conditions: Chemical status recovery time
Priority hazardous substances	**Good**	2063	Natural conditions: Chemical status recovery time
Benzo(a)pyrene	**Good**	2015	
Benzo(b)fluoranthene	**Good**	2015	
Benzo(g-h-i)perylene	**Good**	2015	
Benzo(k)fluoranthene	**Good**	2015	
Dioxins and dioxin-like compounds	**Good**	2015	
Heptachlor and cis-Heptachlor epoxide	**Good**	2015	
Hexabromocyclododecane (HBCDD)	**Good**	2015	
Hexachlorobenzene	**Good**	2015	
Hexachlorobutadiene	**Good**	2015	
Mercury and Its Compounds	**Good**	2040	Natural conditions: Chemical status recovery time
Nonylphenol	**Good**	2015	
Perfluorooctane sulphonate (PFOS)	**Good**	2015	
Polybrominated diphenyl ethers (PBDE)	**Good**	2063	Natural conditions: Chemical status recovery time
Priority substances	**Good**	2015	
Cypermethrin (Priority)	**Good**	2015	
Fluoranthene	**Good**	2015	
Other Pollutants	**Does not require assessment**	2015	

Protected areas

Viewing latest data (Updated on 17 March 2025). Switch to river basin management plan data

PA Name	Id	Directive	More information
Langstone Harbour	UKSW33	Shellfish Water Directive	

Monitoring sites which have been used to classify this water body

Shows which sites were used for classification for which years within each cycle.

Monitoring Site	Cycle 1	Cycle 2	Cycle 3
HERMITAGE STREAM - NEW ROAD G0003625	2013, 2011, 2014, 2012, 2010, 2009	2019, 2013, 2015, 2014, 2016	2019, 2022
81176 81176	2010, 2014, 2009	2015, 2016, 2014, 2019	2019
EAST HAMPSHIRE/HERMITAGE STREAM/BARNCROFT WAY/ 43142	2013, 2014	2015, 2013, 2016, 2014	2022
EAST HAMPSHIRE/HERMITAGE STREAM/BENTWORTH CLOSE/ 28323	2013, 2011, 2014, 2012, 2010, 2009	2015, 2013, 2016, 2014	2022
EAST HAMPSHIRE/HERMITAGE STREAM/RAMSDALE AVENUE/ 43141	2013		

Upstream water bodies

Downstream water bodies

LANGSTONE HARBOUR

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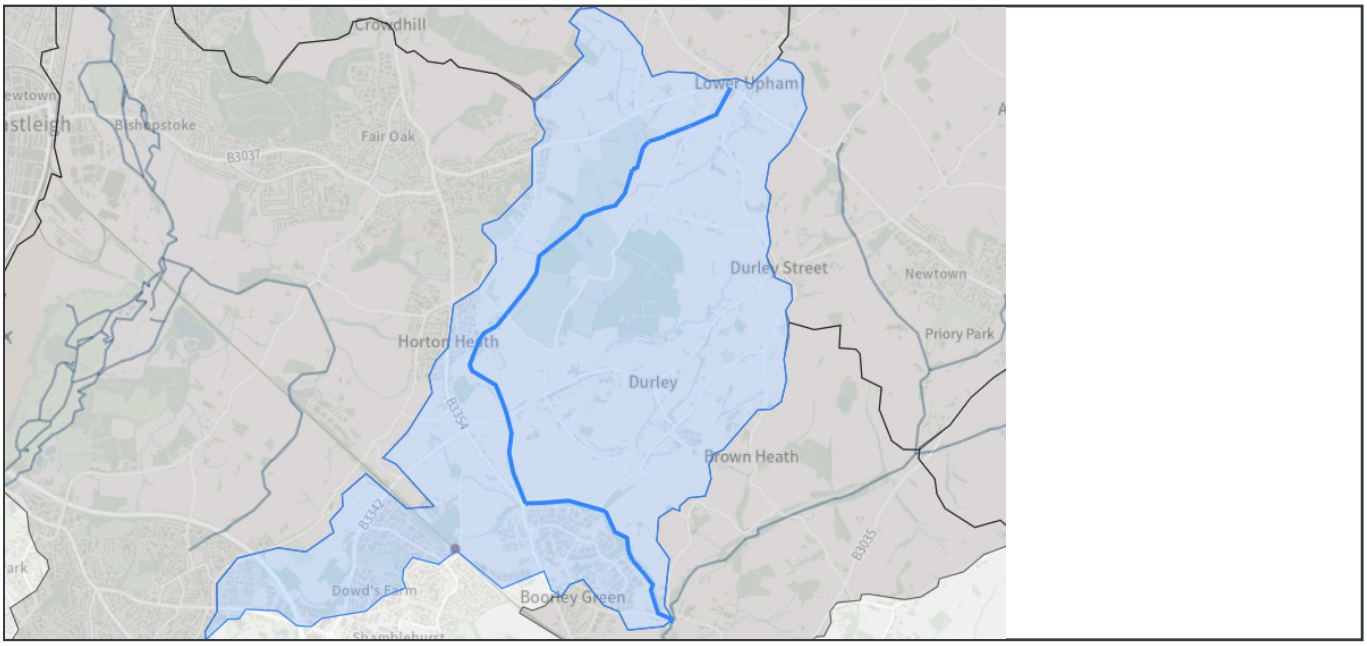
Horton Heath Stream Water Body

Good ecological status



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Attributes

Water Body ID	Water Body Type	Hydromorphological designation

NGR	Catchment area	Surveillance Water Body
SU4989816702	15.853 km2	No
Length	**Catchment area**	
8.576 km	1585.35 ha	

Classifications

Time period: Cycle 3

Classification Item	2019	2022
Ecological	**Good**	**Good**
Biological quality elements	**Moderate**	**Moderate**
Fish	**Moderate**	**Moderate**
Invertebrates	**Good**	**Good**
Macrophytes and Phytobenthos Combined	**Good**	**Good**
Phytobenthos Sub Element	**Good**	**Good**
Physico-chemical quality elements	**Good**	**Good**
Ammonia (Phys-Chem)	**High**	**High**
Dissolved oxygen	**Good**	**High**
Phosphate	**Good**	**Good**
Temperature	**High**	**High**
pH	**High**	**High**
Hydromorphological Supporting Elements	**Not high**	**Not high**
Hydrological Regime	**Supports good**	**Supports good**
Supporting elements (Surface Water)	**Good**	**Good**
Mitigation Measures Assessment	**Good**	**Good**
Chemical	Fail	**Does not require assessment**
Priority hazardous substances	Fail	**Does not require assessment**
Benzo(a)pyrene	**Good**	
Dioxins and dioxin-like compounds	**Good**	
Heptachlor and cis-Heptachlor epoxide	**Good**	
Hexabromocyclododecane (HBCDD)	**Good**	
Hexachlorobenzene	**Good**	
Hexachlorobutadiene	**Good**	
Mercury and Its Compounds	Fail	
Perfluorooctane sulphonate (PFOS)	**Good**	
Polybrominated diphenyl ethers (PBDE)	Fail	
Priority substances	**Good**	**Does not require assessment**
Cypermethrin (Priority)	**Good**	
Fluoranthene	**Good**	
Other Pollutants	**Does not require assessment**	**Does not require assessment**

Investigations into classification status

Classification Element	Cycle	Year	Status	Outcome
Fish	2	2019	Moderate	Certain there is not a problem

Reasons for not achieving good (RNAG) and reasons for deterioration (RFD)

All reasons (RFDs and RNAGs) attributed to the classification elements in this water body.

Reason Type	SWMI	Activity	Category	Classification Element	More information
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Polybrominated diphenyl ethers (PBDE)	Details
RFD	Suspect data	Not applicable	No sector responsible	Fish	Details
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Mercury and Its Compounds	Details

Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons for deterioration.

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and rural land management	0	0	0	0	0	0	0
Industry	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0
Navigation	0	0	0	0	0	0	0
Urban and transport	0	0	0	0	0	0	0
Water Industry	0	0	0	0	0	0	0
Local & central government	0	0	0	0	0	0	0
Domestic general public	0	0	0	0	0	0	0
Recreation	0	0	0	0	0	0	0
Waste treatment and disposal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Sector under investigation	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Objectives

Classification Item	Status	Year	Reasons
Ecological	**Good**	2015	
Biological quality elements	**Good**	2015	
Fish	**Good**	2015	
Invertebrates	**Good**	2015	
Macrophytes and Phytobenthos Combined	**Good**	2015	
Physico-chemical quality elements	**Good**	2015	
Ammonia (Phys-Chem)	**Good**	2015	
Dissolved oxygen	**Good**	2015	
Phosphate	**Good**	2015	
Temperature	**Good**	2015	
pH	**Good**	2015	
Hydromorphological Supporting Elements	**Not high**	2015	
Hydrological Regime	**Supports good**	2015	
Supporting elements (Surface Water)	**Good**	2015	
Mitigation Measures Assessment	**Good**	2015	
Specific pollutants	**Not assessed**	2015	
Chemical	**Good**	2063	Natural conditions: Chemical status recovery time
Priority hazardous substances	**Good**	2063	Natural conditions: Chemical status recovery time
Benzo(a)pyrene	**Good**	2015	
Dioxins and dioxin-like compounds	**Good**	2015	
Heptachlor and cis-Heptachlor epoxide	**Good**	2015	
Hexabromocyclododecane (HBCDD)	**Good**	2015	
Hexachlorobenzene	**Good**	2015	
Hexachlorobutadiene	**Good**	2015	
Mercury and Its Compounds	**Good**	2040	Natural conditions: Chemical status recovery time
Perfluorooctane sulphonate (PFOS)	**Good**	2015	
Polybrominated diphenyl ethers (PBDE)	**Good**	2063	Natural conditions: Chemical status recovery time

Classification Item	Status	Year	Reasons
Fluoranthene	Good	2015	
Other Pollutants	Does not require assessment	2015	

Protected areas

PA Name	Id	Directive	More information
Hamble Estuary Eutrophic NVZ (TraC)	ET3	Nitrates Directive	

Monitoring sites which have been used to classify this water body

Shows which sites were used for classification for which years within each cycle.

Monitoring Site	Cycle 1	Cycle 2	Cycle 3
42285 42285	2014, 2010, 2009	2016, 2015, 2014	
FORD LAKE G0003764	2014	2019, 2015, 2016	2019, 2022
WANGFIELD FARM G0003742	2009, 2012, 2010, 2013, 2011	2013, 2014	
EAST HAMPSHIRE/HAMBLE/FORD LAKE / HORTON HEATH STREAM/CHANCELLOR'S LANE/ 43021	2013, 2014	2019, 2015, 2013, 2016, 2014	2019, 2022
EAST HAMPSHIRE/HAMBLE/FORD LAKE / HORTON HEATH STREAM/HOLME FARM/ 43541	2013, 2014	2019, 2015, 2013, 2016, 2014	2019, 2022
EAST HAMPSHIRE/HAMBLE/FORD LAKE / HORTON HEATH STREAM/MADDOXFORD FARM D/S ROAD BRIDGE/ 4277	2012, 2010, 2011		

Upstream water bodies

Downstream water bodies

Main River Hamble

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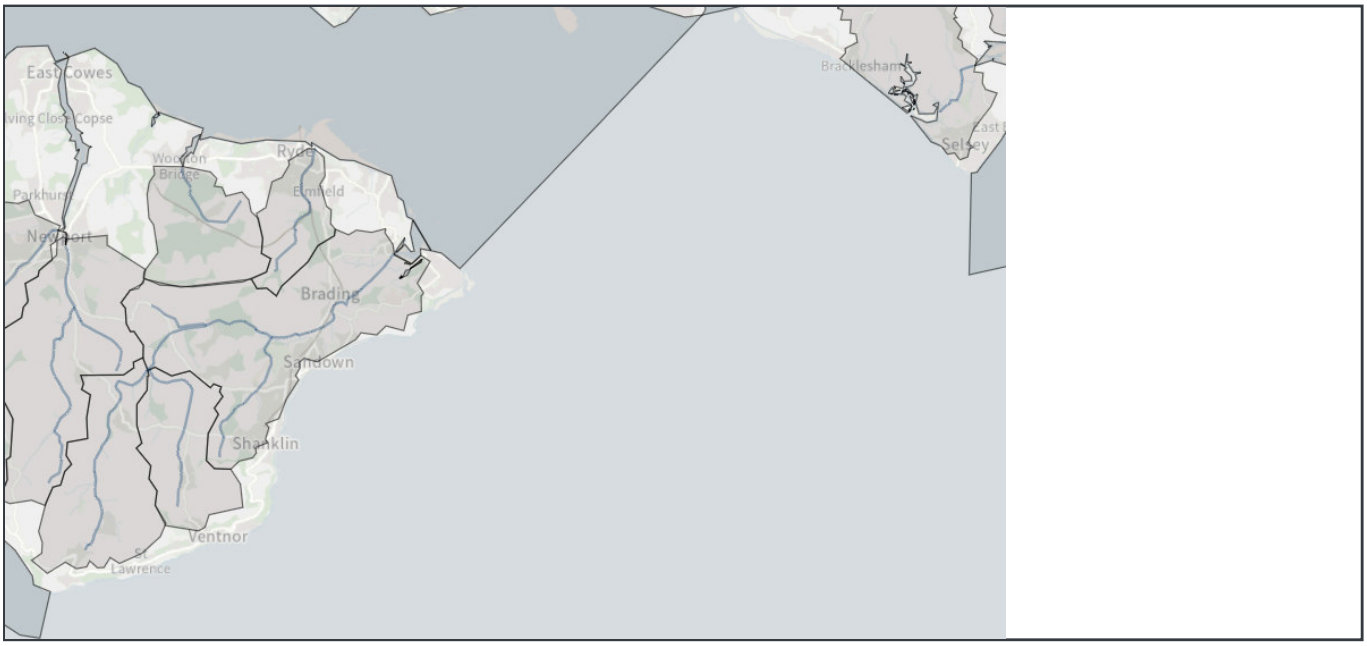
Isle of Wight East Water Body

Good ecological status



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Attributes

Water Body ID	Water Body Type	Hydromorphological designation

NGR	Surveillance Water Body	Surface area
SZ7078885933	No	264.915 km2

Surface area
26491.464 ha

Classifications

Time period: Cycle 3

Classification Item	2019	2022
Ecological	**Good**	**Good**
Biological quality elements	**Good**	**Good**
Invertebrates	**Good**	**Good**
Imposex	**Good**	**Good**
Phytoplankton	**High**	**High**
Physico-chemical quality elements	**High**	**High**
Dissolved Inorganic Nitrogen	**High**	**High**
Dissolved oxygen	**High**	**High**
Supporting elements (Surface Water)	**Good**	**Good**
Mitigation Measures Assessment	**Good**	**Good**
Chemical	Fail	**Does not require assessment**
Priority hazardous substances	Fail	**Does not require assessment**
Benzo(a)pyrene	**Good**	
Dioxins and dioxin-like compounds	**Good**	
Heptachlor and cis-Heptachlor epoxide	**Good**	
Hexabromocyclododecane (HBCDD)	**Good**	
Hexachlorobenzene	**Good**	
Hexachlorobutadiene	**Good**	
Mercury and Its Compounds	Fail	
Perfluorooctane sulphonate (PFOS)	**Good**	
Polybrominated diphenyl ethers (PBDE)	Fail	
Priority substances	**Good**	**Does not require assessment**
Fluoranthene	**Good**	
Other Pollutants	**Does not require assessment**	**Does not require assessment**

Why do all water bodies have a chemical status of fail?

Investigations into classification status

No data to show

Reasons for not achieving good (RNAG) and reasons for

deterioration (RFD)

All reasons (RFDs and RNAGs) attributed to the classification elements in this water body.

Reason Type	SWMI	Activity	Category	Classification Element	More information
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Polybrominated diphenyl ethers (PBDE)	Details
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Mercury and Its Compounds	Details

Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons for deterioration.

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and rural land management	0	0	0	0	0	0	0
Industry	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0
Navigation	0	0	0	0	0	0	0
Urban and transport	0	0	0	0	0	0	0
Water Industry	0	0	0	0	0	0	0
Local & central government	0	0	0	0	0	0	0
Domestic general public	0	0	0	0	0	0	0
Recreation	0	0	0	0	0	0	0
Waste treatment and disposal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
No sector responsible	0	0	0	0	0	0	0
Sector under investigation	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Objectives

Classification Item	Status	Year	Reasons

Classification Item	Status	Year	Reasons
Biological quality elements	**Good**	2015	
Invertebrates	**Good**	2015	
Phytoplankton	**Good**	2015	
Physico-chemical quality elements	**Good**	2015	
Dissolved Inorganic Nitrogen	**Good**	2015	
Dissolved oxygen	**Good**	2015	
Hydromorphological Supporting Elements	**Not assessed**	2015	
Supporting elements (Surface Water)	**Good**	2015	
Mitigation Measures Assessment	**Good**	2015	
Specific pollutants	**Not assessed**	2015	
Chemical	**Good**	2063	Natural conditions: Chemical status recovery time
Priority hazardous substances	**Good**	2063	Natural conditions: Chemical status recovery time
Benzo(a)pyrene	**Good**	2015	
Dioxins and dioxin-like compounds	**Good**	2015	
Heptachlor and cis-Heptachlor epoxide	**Good**	2021	Natural conditions: Chemical status recovery time
Hexabromocyclododecane (HBCDD)	**Good**	2015	
Hexachlorobenzene	**Good**	2015	
Hexachlorobutadiene	**Good**	2015	
Mercury and Its Compounds	**Good**	2040	Natural conditions: Chemical status recovery time
Perfluorooctane sulphonate (PFOS)	**Good**	2015	
Polybrominated diphenyl ethers (PBDE)	**Good**	2063	Natural conditions: Chemical status recovery time
Priority substances	**Good**	2015	
Fluoranthene	**Good**	2015	
Other Pollutants	**Does not require assessment**	2015	

Protected areas

PA Name	Id	Directive	More information
Sandown	UK18400	Bathing Water Directive	
Chichester Harbour	UKENCA56	Urban Waste Water Treatment Directive	
Chichester,Langstone and Portsmouth Harbours Eutrophic NVZ (TraC)	ET2	Nitrates Directive	
Chichester And Langstone Harbours	UK9011011	Special Protection Area	Natural England
Solent Maritime	UK0030059	Special Area of Conservation	Natural England

PA Name	Id	Directive	More information
South Wight Maritime	UK0030061	Special Area of Conservation	Natural England
Solent & Southampton Water	UK9011061	Special Protection Area	Natural England
Solent & Southampton Water	UK11063	Ramsar Site	Natural England
Chichester Harbour (Emsworth Channel)	UKSW30	Shellfish Water Directive	
Newtown harbour, Mediina Estuary and Eastern Yar Eutrophic NVZ (TraC)	ET7	Nitrates Directive	
Bracklesham Bay	UK16000	Bathing Water Directive	
Ventnor	UK18600	Bathing Water Directive	
Yaverland	UK18350	Bathing Water Directive	
Whitecliff Bay	UK18300	Bathing Water Directive	
Shanklin	UK18500	Bathing Water Directive	
West Wittering	UK16100	Bathing Water Directive	
Bembridge	UK18200	Bathing Water Directive	

Monitoring sites which have been used to classify this water body

Shows which sites were used for classification for which years within each cycle.

Monitoring Site	Cycle 1	Cycle 2	Cycle 3
SANDOWN LSO COASTAL POINT Y0004365	2011, 2009, 2013, 2012, 2010		

Upstream water bodies

Downstream water bodies

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Itchen Water Body

Good ecological status



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Attributes

Water Body ID	Water Body Type	Hydromorphological designation

NGR SU4662119265	**Catchment area** 119.619 km2	**Natural England Revised WB Protected Area targets** http://publications.naturalengland.org.uk/publication/5077964668534784
Surveillance Water Body Yes	**Length** 87.94 km	**Catchment area** 11961.906 ha

Classifications

Time period: Cycle 3

Classification Item	2019	2022
Ecological	**Good**	**Good**
Biological quality elements	**Good**	**Good**
Fish	**High**	**High**
Invertebrates	**High**	**High**
Macrophytes and Phytobenthos Combined	**Good**	**Good**
Macrophytes Sub Element	**Good**	**Good**
Phytobenthos Sub Element	**High**	**High**
Physico-chemical quality elements	**High**	**High**
Acid Neutralising Capacity	**High**	**High**
Ammonia (Phys-Chem)	**High**	**High**
Biochemical Oxygen Demand (BOD)		**High**
Dissolved oxygen	**High**	**High**
Phosphate	**High**	**High**
Temperature	**High**	**High**
pH	**High**	**High**
Hydromorphological Supporting Elements	**Not high**	**Not high**
Hydrological Regime	**Does not support good**	**Does not support good**
Specific pollutants	**High**	**High**
Arsenic	**High**	**High**
Chlorothalonil	**High**	**High**
Chromium (VI)	**High**	**High**
Copper	**High**	**High**
Iron	**High**	**High**
Manganese	**High**	**High**
Pendimethalin	**High**	**High**
Zinc	**High**	**High**
Chemical	Fail	**Does not require assessment**
Priority hazardous substances	Fail	**Does not require assessment**

Classification Item	2019	2022
Benzo(g-h-i)perylene	Fail	
Benzo(k)fluoranthene	Good	
Cadmium and Its Compounds	Good	
Dioxins and dioxin-like compounds	Good	
Heptachlor and cis-Heptachlor epoxide	Good	
Hexabromocyclododecane (HBCDD)	Good	
Hexachlorobenzene	Good	
Hexachlorobutadiene	Good	
Hexachlorocyclohexane	Good	
Mercury and Its Compounds	Fail	
Nonylphenol	Good	
Pentachlorobenzene	Good	
Perfluorooctane sulphonate (PFOS)	Good	
Polybrominated diphenyl ethers (PBDE)	Fail	
Quinoxyfen	Good	
Tributyltin Compounds	Good	
Priority substances	Good	Does not require assessment
1,2-dichloroethane	Good	
Aclonifen	Good	
Alachlor	Good	
Benzene	Good	
Bifenox	Good	
Cybutryne	Good	
Dichloromethane	Good	
Dichlorvos (Priority)	Good	
Fluoranthene	Good	
Lead and Its Compounds	Good	
Nickel and Its Compounds	Good	
Terbutryn	Good	
Trichloromethane	Good	
Other Pollutants	Good	Does not require assessment
Aldrin, Dieldrin, Endrin & Isodrin	Good	
Carbon Tetrachloride	Good	
DDT Total	Good	
para - para DDT	Good	

Why do all water bodies have a chemical status of fail?

Investigations into classification status

Classification Element	Cycle	Year	Status	Outcome

Classification Element	Cycle	Year	Status	Outcome
Macrophytes and Phytobenthos Combined	2	2013	Moderate	Uncertain there is a problem

Reasons for not achieving good (RNAG) and reasons for deterioration (RFD)

All reasons (RFDs and RNAGs) attributed to the classification elements in this water body.

Reason Type	SWMI	Activity	Category	Classification Element	More information
RNAG	Physical modification	Conservation and heritage	Sector under investigation	Hydrological Regime	Details
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Mercury and Its Compounds	Details
RNAG	Unknown (pending investigation)	Unknown (pending investigation)	Sector under investigation	Benzo(g-h-i)perylene	Details
RNAG	Suspect data	Not applicable	No sector responsible	Hydrological Regime	Details
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Polybrominated diphenyl ethers (PBDE)	Details

Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons for deterioration.

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and rural land management	0	0	0	0	0	0	0
Industry	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0
Navigation	0	0	0	0	0	0	0
Urban and transport	0	0	0	0	0	0	0
Water Industry	0	0	0	0	0	0	0
Local & central government	0	0	0	0	0	0	0
Domestic general public	0	0	0	0	0	0	0
Recreation	0	0	0	0	0	0	0
Waste treatment	0	0	0	0	0	0	0

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
No sector responsible	0	0	0	0	0	0	0
Sector under investigation	1	0	0	0	0	0	0
Total	1	0	0	0	0	0	0

Objectives

Classification Item	Status	Year	Reasons
Ecological	**Good**	2015	
Biological quality elements	**Good**	2015	
Fish	**Good**	2015	
Invertebrates	**Good**	2015	
Macrophytes and Phytobenthos Combined	**Good**	2015	
Physico-chemical quality elements	**Good**	2015	
Acid Neutralising Capacity	**Good**	2015	
Ammonia (Phys-Chem)	**Good**	2015	
Dissolved oxygen	**Good**	2015	
Phosphate	**Good**	2015	
Temperature	**Good**	2015	
pH	**Good**	2015	
Hydromorphological Supporting Elements	**Not high**	2015	
Hydrological Regime	**Supports good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Supporting elements (Surface Water)	**Not assessed**	2015	
Specific pollutants	**High**	2015	
Arsenic	**High**	2015	
Chlorothalonil	**High**	2015	
Chromium (VI)	**High**	2015	
Copper	**High**	2015	
Iron	**High**	2015	
Manganese	**High**	2015	
Pendimethalin	**High**	2015	
Zinc	**High**	2015	
Chemical	**Good**	2063	Natural conditions: Chemical status recovery time; Technically infeasible: No known technical solution is available
Priority hazardous substances		2063	Natural conditions: Chemical status recovery time;

Classification Item	Status	Year	Reasons
Benzo (b) and (k) fluoranthene	**Good**	2015	
Benzo (ghi) perelyene and indeno (123-cd) pyrene	**Good**	2015	
Benzo(a)pyrene	**Good**	2015	
Benzo(b)fluoranthene	**Good**	2015	
Benzo(g-h-i)perylene	**Good**	2033	Technically infeasible: No known technical solution is available
Benzo(k)fluoranthene	**Good**	2015	
Cadmium and Its Compounds	**Good**	2015	
Dioxins and dioxin-like compounds	**Good**	2015	
Heptachlor and cis-Heptachlor epoxide	**Good**	2015	
Hexabromocyclododecane (HBCDD)	**Good**	2015	
Hexachlorobenzene	**Good**	2015	
Hexachlorobutadiene	**Good**	2015	
Hexachlorocyclohexane	**Good**	2015	
Mercury and Its Compounds	**Good**	2040	Natural conditions: Chemical status recovery time
Nonylphenol	**Good**	2015	
Pentachlorobenzene	**Good**	2015	
Perfluorooctane sulphonate (PFOS)	**Good**	2015	
Polybrominated diphenyl ethers (PBDE)	**Good**	2063	Natural conditions: Chemical status recovery time
Quinoxyfen	**Good**	2015	
Tributyltin Compounds	**Good**	2015	
Priority substances	**Good**	2015	
1,2-dichloroethane	**Good**	2015	
Aclonifen	**Good**	2015	
Alachlor	**Good**	2015	
Benzene	**Good**	2015	
Bifenox	**Good**	2015	
Cybutryne	**Good**	2015	
Dichloromethane	**Good**	2015	
Dichlorvos (Priority)	**Good**	2015	
Fluoranthene	**Good**	2015	
Lead and Its Compounds	**Good**	2015	
Nickel and Its Compounds	**Good**	2015	
Terbutryn	**Good**	2015	
Trichloromethane	**Good**	2015	
Other Pollutants	**Good**	2015	
Aldrin, Dieldrin, Endrin & Isodrin	**Good**	2015	
Carbon Tetrachloride	**Good**	2015	
DDT Total	**Good**	2015	

Protected areas

PA Name	Id	Directive	More information
Hamble Estuary Eutrophic NVZ (TraC)	ET3	Nitrates Directive	
Hampshire Chalk	G143	Nitrates Directive	
Solent And Dorset Coast	UK9020330	Special Protection Area	Natural England
Itchen	UKGB107042022580	Drinking Water Protected Area	
River Itchen (Hampshire)	UKENRI110	Urban Waste Water Treatment Directive	
River Itchen	UK0012599	Special Area of Conservation	Natural England
Southampton Water	UKSW35	Shellfish Water Directive	

Monitoring sites which have been used to classify this water body

Shows which sites were used for classification for which years within each cycle.

Monitoring Site	Cycle 1	Cycle 2	Cycle 3
110183 110183	2010, 2009, 2011		
ITCHEN/BISHOPSTOKE BARGE/ 6292	2011, 2014, 2012, 2010, 2013	2014, 2019, 2015, 2013, 2016	2019, 2022
R ITCHEN GATERS MILL G0003786	2013, 2011, 2009, 2010, 2012, 2014	2019, 2016, 2015, 2014, 2013	2019, 2022
43307 43307	2010, 2009		
D/S HARESTOCK WWTW G0004209	2013, 2009, 2011, 2010, 2012, 2014		
HARESTOCK STW EQSD G0006475		2019, 2016	2019
43313 43313	2010, 2009		
41998 41998	2014, 2012, 2013, 2011, 2010, 2009	2014, 2013, 2016, 2019, 2015	2019, 2022
110141 110141	2010, 2009, 2011		
ITCHEN/RAILWAY/ 7022	2011, 2009, 2010		
R ITCHEN AT ITCHEN STOKE G0003810	2009, 2012, 2013, 2014	2019, 2015, 2013, 2016, 2014	2019, 2022
ITCHEN/ITCHEN NAVIGATION/SHAWFORD NAVIGATION EEL INDEX/ 30233	2011, 2012, 2010, 2013		
110184 110184	2010, 2009, 2011		
133582 133582	2010, 2009, 2011		
43091 43091	2014, 2012, 2010, 2013, 2009, 2011	2013, 2016, 2019, 2014, 2015	2019, 2022
43100 43100	2009, 2012, 2010, 2013,	2019, 2013	2019,

Monitoring Site	Cycle 1	Cycle 2	Cycle 3
110161 110161	2010, 2009, 2011		
110207 110207	2010, 2009, 2011		
43110 43110	2010, 2012, 2011, 2009		
ITCHEN/FULLING MILL, ABBOTT'S WORTHY/ 30232	2011, 2014, 2012, 2010, 2013	2014, 2019, 2015, 2013, 2016	2019, 2022
ITCHEN/ITCHEN NAVIGATION/TUN BRIDGE/ 6313	2011, 2012, 2009, 2010		
110185 110185	2010, 2009, 2011		
ITCHEN/BISHOPSTOKE LOCK/ 34279	2011, 2012, 2010, 2013		
110242 110242	2010, 2009, 2013, 2011		
133604 133604	2010, 2009, 2011		
110123 110123	2010, 2009, 2011		
ITCHEN/SHAWFORD PARK/ 34565	2011, 2014, 2012, 2013	2014, 2019, 2015, 2013, 2016	2019, 2022
ITCHEN/ITCHEN NAVIGATION/ALLBROOK LOCK/ 6309	2011, 2012, 2009, 2010		
110181 110181	2009		
110201 110201	2010, 2009, 2011		
ALLINGTON LANE STREAM-*CLOSED* G0003845	2009		
42063 42063	2010, 2009		
R ITCHEN ST CROSS BRIDGE G0003795	2009, 2011, 2012, 2010, 2013, 2014	2019, 2015, 2013, 2016, 2014	2019, 2022
133581 133581	2010, 2009, 2011		
110244 110244	2010, 2009, 2011		
OTTERBOURNE MEMORIAL GARDEN G0003796	2009, 2011, 2012, 2010, 2013, 2014	2019, 2015, 2013, 2016, 2014	2019, 2022
42204 42204	2014, 2012, 2010, 2013, 2009, 2011	2019, 2014, 2015, 2013	2019, 2022
ITCHEN/LOWER ITCHEN FISHERY - ALLINGTON STREAM/ 6310	2009, 2010		
110245 110245	2009, 2011		
110202 110202	2010, 2009, 2011		
110246 110246	2010, 2009, 2011		
133641 133641	2010, 2009, 2011		
ITCHEN/SHAWFORD, DOWNTREAM OF NORRIS'S BRIDGE/ 6259	2009		

Monitoring Site	Cycle 1	Cycle 2	Cycle 3
ITCHEN/FALLODON STREAM/ 32689	2011, 2012, 2010, 2013		
ITCHEN/CHILLAND HOUSE/ 32813	2011, 2012, 2010, 2013		
ITCHEN/SWIMMING POOL, WINCHESTER/ 6253	2009		
WEST LEA CHANNEL 75M DS FARM G0006491		2016	
110223 110223	2010, 2009, 2013, 2011		
ITCHEN/ITCHEN NAVIGATION/HAM FARM/ 6250	2011, 2010, 2013		
42048 42048	2014, 2012, 2010, 2013, 2009, 2011	2019, 2014, 2015, 2013	2019, 2022
R ITCHEN BISHOPSTOKE G0003793	2009, 2011, 2012, 2010, 2013, 2014	2019, 2015, 2013, 2016, 2014	2019, 2022
43315 43315	2010, 2009		
ITCHEN/WOLVESEY LODGE/ 6256	2011, 2009, 2010, 2013		
ITCHEN/SEGAR'S FARM/ 33949	2011, 2012, 2010, 2013		
110243 110243	2010, 2009, 2011		
ITCHEN/TWYFORD LODGE/ 40070	2013		
R ITCHEN D/S EASTLEIGH STW G0003792	2013, 2009, 2011, 2010, 2012, 2014	2019, 2016	2019
R ITCHEN EASTON G0003806	2009, 2012, 2013, 2014	2019, 2016, 2015, 2014, 2013	2019, 2022
110241 110241	2010, 2009, 2013, 2011		
110222 110222	2010, 2009, 2011		
110203 110203	2010, 2009, 2011		

Upstream water bodies

- Bow Lake
- Itchen (Cheriton Stream)
- Candover Brook
- Nun's Walk Stream
- Arle

Downstream water bodies

- SOUTHAMPTON WATER

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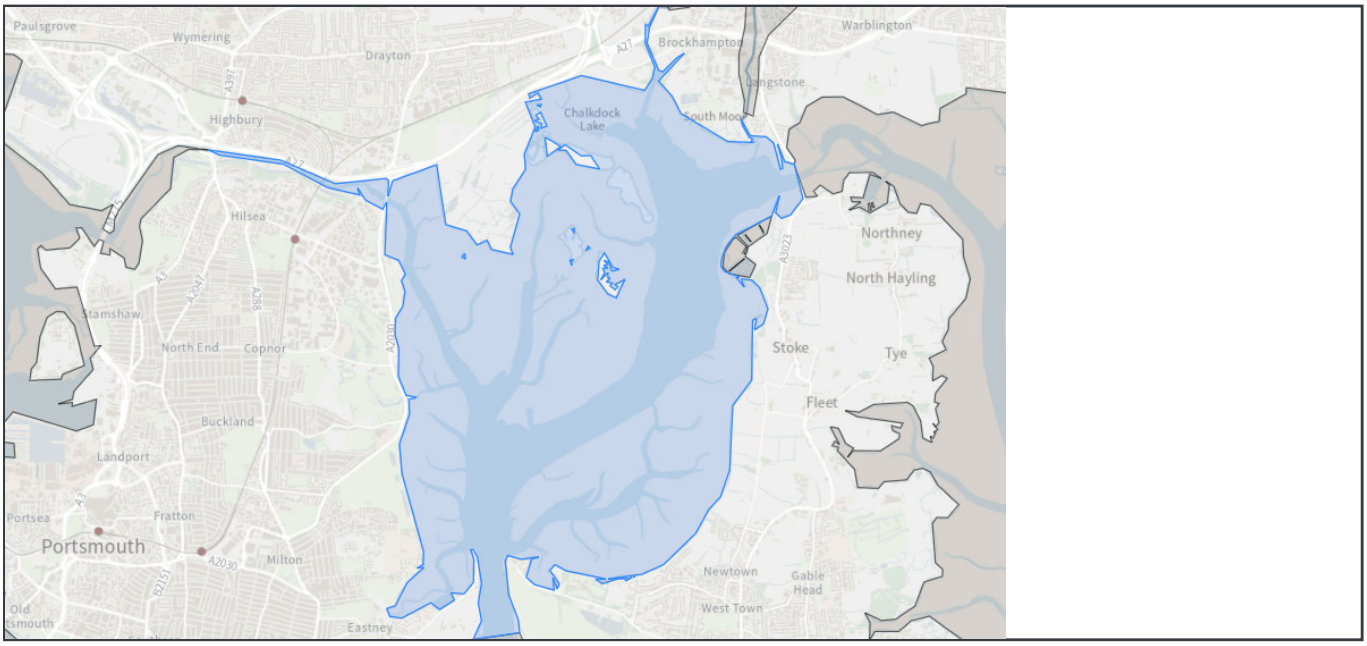
LANGSTONE HARBOUR Water Body

Moderate ecological status



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Attributes

Water Body ID	Water Body Type	Hydromorphological designation

NGR	Surveillance Water Body	Surface area
SU6951402666	No	19.027 km2

Surface area
1902.686 ha

Classifications

Time period: Cycle 3

Classification Item	2019	2022
Ecological	**Moderate**	**Moderate**
Biological quality elements	**Moderate**	**Moderate**
Angiosperms	**Moderate**	**Moderate**
Saltmarsh	**Moderate**	**Moderate**
Invertebrates	**Good**	**Good**
Infaunal Quality Index	**Good**	**Good**
Macroalgae	**Good**	**Good**
Opportunistic Macroalgae	**Good**	**Good**
Phytoplankton	**High**	**High**
Physico-chemical quality elements	**Good**	**Good**
Dissolved Inorganic Nitrogen	**Good**	**Good**
Dissolved oxygen	**High**	**High**
Hydromorphological Supporting Elements	**Not high**	**Not high**
Hydrological Regime	**Supports good**	**Supports good**
Supporting elements (Surface Water)	**Moderate**	**Moderate**
Mitigation Measures Assessment	**Moderate or less**	**Moderate or less**
Specific pollutants	**High**	**High**
Copper	**High**	**High**
Zinc	**High**	**High**
Chemical	Fail	**Does not require assessment**
Priority hazardous substances	Fail	**Does not require assessment**
Anthracene	**Good**	
Benzo(a)pyrene	**Good**	
Benzo(b)fluoranthene	**Good**	
Benzo(g-h-i)perylene	**Good**	
Benzo(k)fluoranthene	**Good**	
Cadmium and Its Compounds	**Good**	
Dioxins and dioxin-like compounds	**Good**	
Heptachlor and cis-Heptachlor epoxide	**Good**	
Hexabromocyclododecane (HBCDD)	**Good**	
Hexachlorobenzene	**Good**	

Classification Item	2019	2022
Hexachlorocyclohexane	**Good**	
Mercury and Its Compounds	Fail	
Pentachlorobenzene	**Good**	
Perfluorooctane sulphonate (PFOS)	**Good**	
Polybrominated diphenyl ethers (PBDE)	Fail	
Quinoxyfen	**Good**	
Tributyltin Compounds	**Good**	
Priority substances	**Good**	**Does not require assessment**
Aclonifen	**Good**	
Alachlor	**Good**	
Bifenox	**Good**	
Fluoranthene	**Good**	
Lead and Its Compounds	**Good**	
Napthalene	**Good**	
Nickel and Its Compounds	**Good**	
Other Pollutants	**Good**	**Does not require assessment**
Aldrin, Dieldrin, Endrin & Isodrin	**Good**	
para - para DDT	**Good**	

Why do all water bodies have a chemical status of fail?

Investigations into classification status

Classification Element	Cycle	Year	Status	Outcome
Hydrological Regime	2	2013	Does Not Support Good	Uncertain there is a problem

Reasons for not achieving good (RNAG) and reasons for deterioration (RFD)

All reasons (RFDs and RNAGs) attributed to the classification elements in this water body.

Reason Type	SWMI	Activity	Category	Classification Element	More information
RNAG	Physical modification	Flood protection use	Local and Central Government	Mitigation Measures Assessment	Details
RNAG	Unknown (pending investigation)	Unknown (pending investigation)	Sector under investigation	Mercury and Its Compounds	Details
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Polybrominated diphenyl ethers (PBDE)	Details
RNAG	Physical modification	Coastal squeeze	Sector under investigation	Angiosperms	Details
RNAG	Physical modification	Coast protection use	Local and Central Government	Mitigation Measures Assessment	Details
RNAG	measures delivered to address	Not applicable	No sector	Mercury and Its	Details

Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons for deterioration.

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and rural land management	0	0	0	0	0	0	0
Industry	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0
Navigation	0	0	0	0	0	0	0
Urban and transport	0	0	0	0	0	0	0
Water Industry	0	0	0	0	0	0	0
Local & central government	2	0	0	0	0	0	0
Domestic general public	0	0	0	0	0	0	0
Recreation	0	0	0	0	0	0	0
Waste treatment and disposal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
No sector responsible	0	0	0	0	0	0	0
Sector under investigation	1	0	0	0	0	0	0
Total	3	0	0	0	0	0	0

Objectives

Classification Item	Status	Year	Reasons
Ecological	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens; Good status prevented by A/HMWB designated use: Action to get biological element to good would have significant adverse impact on use
Biological quality elements	**Moderate**	2021	Good status prevented by A/HMWB designated use: Action to get biological element to good would have significant adverse impact on use
Angiosperms	**Moderate**	2021	Good status prevented by A/HMWB designated use: Action to get biological element to good would have significant adverse impact on use
Invertebrates	**Good**	2015	

Classification Item	Status	Year	Reasons
Physico-chemical quality elements	**Good**	2015	
Dissolved Inorganic Nitrogen	**Good**	2015	
Dissolved oxygen	**Good**	2015	
Hydromorphological Supporting Elements	**Not high**	2015	
Hydrological Regime	**Supports good**	2015	
Supporting elements (Surface Water)	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Mitigation Measures Assessment	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Specific pollutants	**High**	2015	
Copper	**High**	2015	
Zinc	**High**	2015	
Chemical	**Good**	2063	Natural conditions: Chemical status recovery time
Priority hazardous substances	**Good**	2063	Natural conditions: Chemical status recovery time
Anthracene	**Good**	2015	
Benzo(a)pyrene	**Good**	2015	
Benzo(b)fluoranthene	**Good**	2015	
Benzo(g-h-i)perylene	**Good**	2015	
Benzo(k)fluoranthene	**Good**	2015	
Cadmium and Its Compounds	**Good**	2015	
Dioxins and dioxin-like compounds	**Good**	2015	
Heptachlor and cis-Heptachlor epoxide	**Good**	2015	
Hexabromocyclododecane (HBCDD)	**Good**	2015	
Hexachlorobenzene	**Good**	2015	
Hexachlorobutadiene	**Good**	2015	
Hexachlorocyclohexane	**Good**	2015	
Mercury and Its Compounds	**Good**	2040	Natural conditions: Chemical status recovery time
Pentachlorobenzene	**Good**	2015	
Perfluorooctane sulphonate (PFOS)	**Good**	2015	
Polybrominated diphenyl ethers (PBDE)	**Good**	2063	Natural conditions: Chemical status recovery time
Quinoxyfen	**Good**	2015	
Tributyltin Compounds	**Good**	2015	
Priority substances	**Good**	2015	
Aclonifen	**Good**	2015	
Alachlor	**Good**	2015	
Bifenox	**Good**	2015	

Classification Item	Status	Year	Reasons
Napthalene	**Good**	2015	
Nickel and Its Compounds	**Good**	2015	
Other Pollutants	**Good**	2015	
Aldrin, Dieldrin, Endrin & Isodrin	**Good**	2015	
para - para DDT	**Good**	2015	

Protected areas

PA Name	Id	Directive	More information
Chichester,Langstone and Portsmouth Harbours Eutrophic NVZ (TraC)	ET2	Nitrates Directive	
Chichester And Langstone Harbours	UK9011011	Special Protection Area	Natural England
Solent Maritime	UK0030059	Special Area of Conservation	Natural England
Chichester And Langstone Harbours	UK11013	Ramsar Site	Natural England
Solent And Dorset Coast	UK9020330	Special Protection Area	Natural England
Langstone Harbour	UKSW33	Shellfish Water Directive	
Chichester Harbour (Emsworth Channel)	UKSW30	Shellfish Water Directive	
Portsmouth Harbour	UKENCA111	Urban Waste Water Treatment Directive	
Portsmouth Harbour	UKSW34	Shellfish Water Directive	
Langstone Harbour	UKENCA55	Urban Waste Water Treatment Directive	

Monitoring sites which have been used to classify this water body

Shows which sites were used for classification for which years within each cycle.

Monitoring Site	Cycle 1	Cycle 2	Cycle 3
LANGSTONE HARBOUR CSEMP MUSSELS G0006529		2015, 2016, 2019	2019
BROOM CHANNEL GREAT SALTERNS G0003484		2019	2019

Upstream water bodies

Hermitage Stream

Lavant (Hants)

Downstream water bodies

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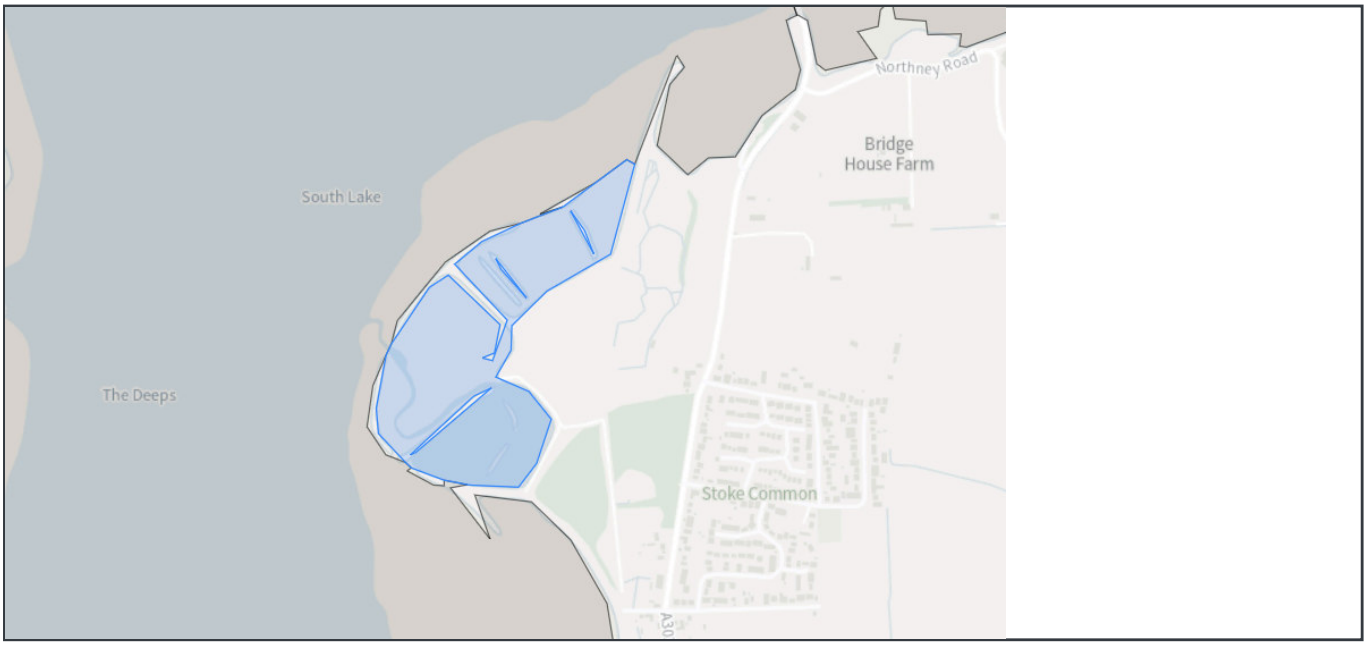
Langstone Oysterbeds Water Body

Good ecological status



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Attributes

Water Body ID	Water Body Type	Hydromorphological designation

NGR	Surface area	Surface area
SU7136903561	15.938 ha	0.159 km2

Surveillance Water Body
No

Classifications

Time period: Cycle 3

Classification Item	2019	2022
Ecological	**Good**	
Hydromorphological Supporting Elements	**Not high**	
Hydrological Regime	**High**	
Supporting elements (Surface Water)	**Moderate**	
Expert Judgement	**Moderate**	
Mitigation Measures Assessment	**Good**	
Chemical	Fail	**Does not require assessment**
Priority hazardous substances	Fail	**Does not require assessment**
Benzo(a)pyrene	**Good**	
Dioxins and dioxin-like compounds	**Good**	
Heptachlor and cis-Heptachlor epoxide	**Good**	
Hexabromocyclododecane (HBCDD)	**Good**	
Hexachlorobenzene	**Good**	
Hexachlorobutadiene	**Good**	
Mercury and Its Compounds	Fail	
Perfluorooctane sulphonate (PFOS)	**Good**	
Polybrominated diphenyl ethers (PBDE)	Fail	
Priority substances	**Good**	**Does not require assessment**
Fluoranthene	**Good**	
Other Pollutants	**Does not require assessment**	**Does not require assessment**

Why do all water bodies have a chemical status of fail?

Investigations into classification status

Classification Element	Cycle	Year	Status	Outcome
Hydrological Regime	2	2013	Does Not Support Good	Uncertain there is a problem

Reasons for not achieving good (RNAG) and reasons for deterioration (RFD)

Viewing latest data (Updated on 17 March 2025). Switch to river basin management plan data

Reason Type	SWMI	Activity	Category	Classification Element	More information
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Polybrominated diphenyl ethers (PBDE)	Details
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Mercury and Its Compounds	Details

Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons for deterioration.

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and rural land management	0	0	0	0	0	0	0
Industry	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0
Navigation	0	0	0	0	0	0	0
Urban and transport	0	0	0	0	0	0	0
Water Industry	0	0	0	0	0	0	0
Local & central government	0	0	0	0	0	0	0
Domestic general public	0	0	0	0	0	0	0
Recreation	0	0	0	0	0	0	0
Waste treatment and disposal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
No sector responsible	0	0	0	0	0	0	0
Sector under investigation	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Objectives

Classification Item	Status	Year	Reasons
Ecological	**Good**	2015	
Biological quality elements	**Not assessed**	2015	

Classification Item	Status	Year	Reasons
Hydromorphological Supporting Elements	**Not high**	2015	
Hydrological Regime	**Supports good**	2015	
Supporting elements (Surface Water)	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Expert Judgement	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Mitigation Measures Assessment	**Good**	2015	
Specific pollutants	**Not assessed**	2015	
Chemical	**Good**	2063	Natural conditions: Chemical status recovery time
Priority hazardous substances	**Good**	2063	Natural conditions: Chemical status recovery time
Benzo(a)pyrene	**Good**	2015	
Dioxins and dioxin-like compounds	**Good**	2015	
Heptachlor and cis-Heptachlor epoxide	**Good**	2021	Natural conditions: Chemical status recovery time
Hexabromocyclododecane (HBCDD)	**Good**	2015	
Hexachlorobenzene	**Good**	2015	
Hexachlorobutadiene	**Good**	2015	
Mercury and Its Compounds	**Good**	2040	Natural conditions: Chemical status recovery time
Perfluorooctane sulphonate (PFOS)	**Good**	2015	
Polybrominated diphenyl ethers (PBDE)	**Good**	2063	Natural conditions: Chemical status recovery time
Priority substances	**Good**	2015	
Fluoranthene	**Good**	2015	
Other Pollutants	**Does not require assessment**	2015	

Protected areas

PA Name	Id	Directive	More information
Chichester,Langstone and Portsmouth Harbours Eutrophic NVZ (TraC)	ET2	Nitrates Directive	
Chichester And Langstone Harbours	UK9011011	Special Protection Area	Natural England
Solent Maritime	UK0030059	Special Area of Conservation	Natural England
Chichester And Langstone Harbours	UK11013	Ramsar Site	Natural England
Langstone Harbour	UKSW33	Shellfish Water Directive	
Langstone Harbour	UKENCA55	Urban Waste Water Treatment Directive	

Monitoring sites which have been used to classify this water body

Shows which sites were used for classification for which years within each cycle.

Monitoring Site	Cycle 1	Cycle 2	Cycle 3

Upstream water bodies

Downstream water bodies

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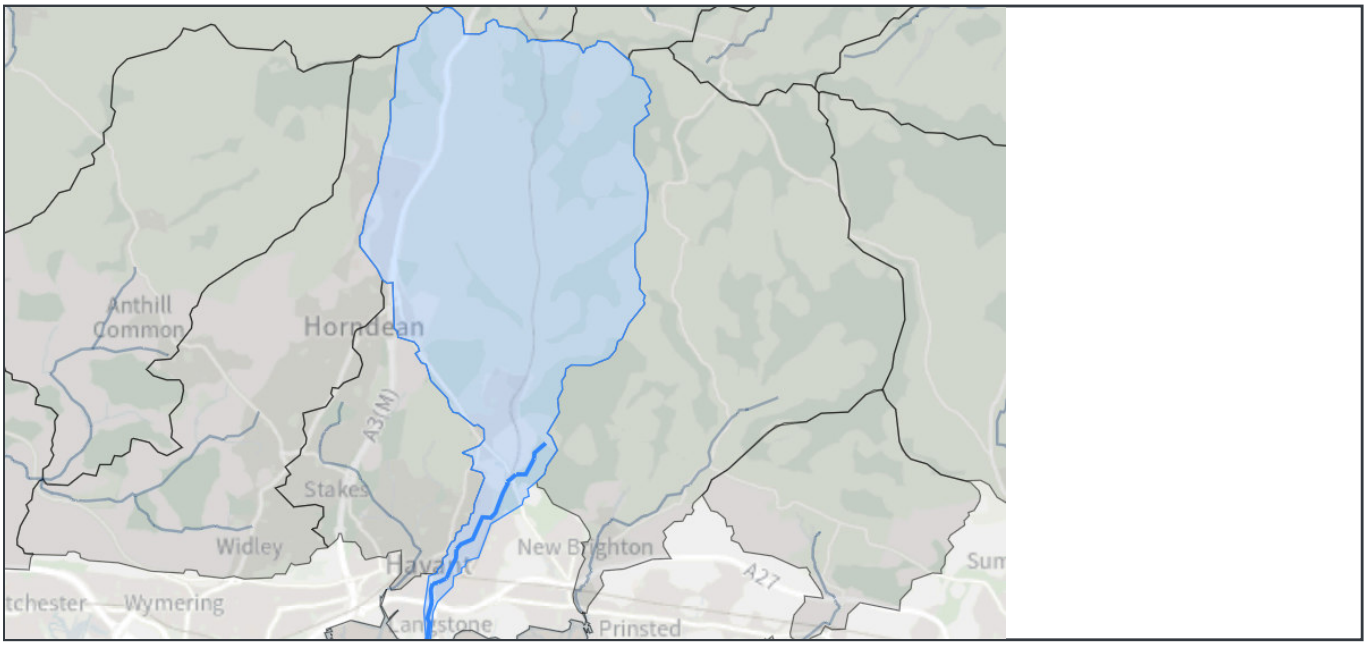
Lavant (Hants) Water Body

Poor ecological status



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Attributes

Water Body ID	Water Body Type	Hydromorphological designation

NGR	Catchment area	Length
SU7252807491	5737.768 ha	6.535 km

Catchment area	Surveillance Water Body
57.378 km2	No

Classifications

Time period: Cycle 3

Classification Item	2019	2022
Ecological	**Poor**	**Poor**
Biological quality elements	**Poor**	**Poor**
Fish	**Poor**	**Poor**
Invertebrates	**High**	**High**
Physico-chemical quality elements	**High**	**High**
Ammonia (Phys-Chem)	**High**	**High**
Dissolved oxygen	**High**	**High**
Phosphate	**High**	**High**
Temperature	**High**	**High**
pH	**High**	**High**
Hydromorphological Supporting Elements	**Not high**	**Not high**
Hydrological Regime	**Supports good**	**Supports good**
Morphology	**Not high**	**Not high**
Chemical	Fail	**Does not require assessment**
Priority hazardous substances	Fail	**Does not require assessment**
Benzo(a)pyrene	**Good**	
Dioxins and dioxin-like compounds	**Good**	
Heptachlor and cis-Heptachlor epoxide	**Good**	
Hexabromocyclododecane (HBCDD)	**Good**	
Hexachlorobenzene	**Good**	
Hexachlorobutadiene	**Good**	
Mercury and Its Compounds	Fail	
Perfluorooctane sulphonate (PFOS)	**Good**	
Polybrominated diphenyl ethers (PBDE)	Fail	
Priority substances	**Good**	**Does not require assessment**
Cypermethrin (Priority)	**Good**	
Fluoranthene	**Good**	
Other Pollutants	**Does not require assessment**	**Does not require assessment**

Why do all water bodies have a chemical status of fail?

Investigations into classification status

Classification Element	Cycle	Year	Status	Outcome
Fish	2	2015	Poor	Quite certain there is a problem

Reasons for not achieving good (RNAG) and reasons for deterioration (RFD)

All reasons (RFDs and RNAGs) attributed to the classification elements in this water body.

Reason Type	SWMI	Activity	Category	Classification Element	More information
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Polybrominated diphenyl ethers (PBDE)	Details
RNAG	Physical modification	Urbanisation - urban development	Urban and transport	Fish	Details
RNAG	Physical modification	Barriers - ecological discontinuity	Other	Fish	Details
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Mercury and Its Compounds	Details

Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons for deterioration.

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and rural land management	0	0	0	0	0	0	0
Industry	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0
Navigation	0	0	0	0	0	0	0
Urban and transport	1	0	0	0	0	0	0
Water Industry	0	0	0	0	0	0	0
Local & central government	0	0	0	0	0	0	0
Domestic general public	0	0	0	0	0	0	0
Recreation	0	0	0	0	0	0	0
Waste treatment	0	0	0	0	0	0	0

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
No sector responsible	0	0	0	0	0	0	0
Sector under investigation	0	0	0	0	0	0	0
Total	2	0	0	0	0	0	0

Objectives

Classification Item	Status	Year	Reasons
Ecological	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Biological quality elements	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Fish	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Invertebrates	**Good**	2015	
Physico-chemical quality elements	**Good**	2015	
Ammonia (Phys-Chem)	**Good**	2015	
Dissolved oxygen	**Good**	2015	
Phosphate	**Good**	2015	
Temperature	**Good**	2015	
pH	**Good**	2015	
Hydromorphological Supporting Elements	**Not high**	2015	
Hydrological Regime	**Supports good**	2015	
Supporting elements (Surface Water)	**Not assessed**	2015	
Specific pollutants	**Not assessed**	2015	
Chemical	**Good**	2063	Natural conditions: Chemical status recovery time
Priority hazardous substances	**Good**	2063	Natural conditions: Chemical status recovery time
Benzo(a)pyrene	**Good**	2015	
Dioxins and dioxin-like compounds	**Good**	2015	
Heptachlor and cis-Heptachlor epoxide	**Good**	2015	
Hexabromocyclododecane (HBCDD)	**Good**	2015	
Hexachlorobenzene	**Good**	2015	
Hexachlorobutadiene	**Good**	2015	
Mercury and Its Compounds	**Good**	2040	Natural conditions: Chemical status recovery time

Classification Item	Status	Year	Reasons
Polybrominated diphenyl ethers (PBDE)	**Good**	2063	Natural conditions: Chemical status recovery time
Priority substances	**Good**	2015	
Cypermethrin (Priority)	**Good**	2015	
Fluoranthene	**Good**	2015	
Other Pollutants	**Does not require assessment**	2015	

Protected areas

PA Name	Id	Directive	More information
Hampshire Chalk	G143	Nitrates Directive	
Chichester,Langstone and Portsmouth Harbours Eutrophic NVZ (TraC)	ET2	Nitrates Directive	
Langstone Harbour	UKSW33	Shellfish Water Directive	

Monitoring sites which have been used to classify this water body

Shows which sites were used for classification for which years within each cycle.

Monitoring Site	Cycle 1	Cycle 2	Cycle 3
R LAVANT AT IBM HAVANT G0003616	2014	2019, 2015, 2016, 2014	2019, 2022
43124 43124	2014, 2010, 2009	2016, 2014, 2015	
WARBLINGTON STRM NO 4-*CLOSED* G0003614	2009		
EAST HAMPSHIRE/LAVANT/LANGSTONE TECHNOLOGY PARK/ 50368		2019, 2015, 2016	2019

Upstream water bodies

Downstream water bodies

LANGSTONE HARBOUR

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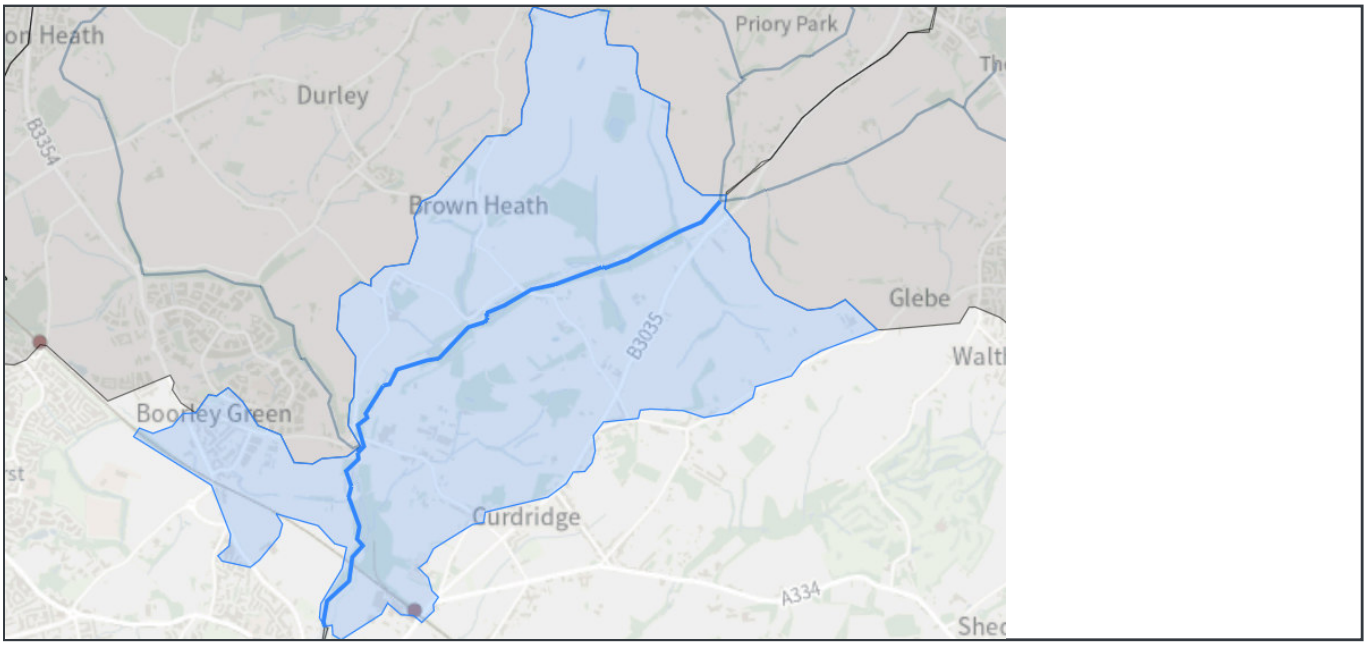
Main River Hamble Water Body

Moderate ecological status



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Attributes

Water Body ID	Water Body Type	Hydromorphological designation

NGR SU5226114919	**Catchment area** 7.176 km2	**Surveillance Water Body** No
Length 4.823 km	**Catchment area** 717.605 ha	

Classifications

Time period: Cycle 3

Classification Item	2019	2022
Ecological	**Moderate**	**Moderate**
Biological quality elements	**Moderate**	**Moderate**
Fish	**Moderate**	**Moderate**
Invertebrates	**High**	**High**
Macrophytes and Phytobenthos Combined	**High**	**High**
Macrophytes Sub Element	**High**	**High**
Physico-chemical quality elements	**Moderate**	**Moderate**
Acid Neutralising Capacity	**High**	**High**
Ammonia (Phys-Chem)	**High**	**High**
Biochemical Oxygen Demand (BOD)		**High**
Dissolved oxygen	**Good**	**High**
Phosphate	**Moderate**	**Moderate**
Temperature	**High**	**High**
pH	**High**	**High**
Hydromorphological Supporting Elements	**Not high**	**Not high**
Hydrological Regime	**Supports good**	**Supports good**
Morphology	**Not high**	**Not high**
Specific pollutants	**High**	**High**
2,4-dichlorophenoxyacetic acid	**High**	**High**
Copper	**High**	**High**
Chemical	Fail	**Does not require assessment**
Priority hazardous substances	Fail	**Does not require assessment**
Benzo(a)pyrene	**Good**	
Dioxins and dioxin-like compounds	**Good**	
Heptachlor and cis-Heptachlor epoxide	**Good**	
Hexabromocyclododecane (HBCDD)	**Good**	
Hexachlorobenzene	**Good**	
Hexachlorobutadiene	**Good**	
Mercury and Its Compounds	Fail	
Perfluorooctane sulphonate (PFOS)	**Good**	
Polybrominated diphenyl ethers (PBDE)	Fail	

Classification Item	2019	2022
Cypermethrin (Priority)	**Good**	
Fluoranthene	**Good**	
Other Pollutants	**Does not require assessment**	**Does not require assessment**

Why do all water bodies have a chemical status of fail?

Investigations into classification status

Classification Element	Cycle	Year	Status	Outcome
Dissolved oxygen	2	2016	Good	
Fish	2	2015	Moderate	Quite certain there is a problem

Reasons for not achieving good (RNAG) and reasons for deterioration (RFD)

All reasons (RFDs and RNAGs) attributed to the classification elements in this water body.

Reason Type	SWMI	Activity	Category	Classification Element	More information
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Polybrominated diphenyl ethers (PBDE)	Details
RNAG	Point source	Sewage discharge (continuous)	Water Industry	Phosphate	Details
RNAG	Diffuse source	Poor Livestock Management	Agriculture and rural land management	Phosphate	Details
RFD	High to Good deterioration, no action required (RFD only)	Not applicable	No sector responsible	Dissolved oxygen	Details
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Mercury and Its Compounds	Details
RNAG	Physical modification	Barriers - ecological discontinuity	Other	Fish	Details
RNAG	Physical modification	Other (not in list, must add details in comments)	Agriculture and rural land management	Fish	Details

Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons for deterioration.

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and rural land management	1	0	0	0	0	1	0
Industry	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0
Navigation	0	0	0	0	0	0	0
Urban and transport	0	0	0	0	0	0	0
Water Industry	0	1	0	0	0	0	0
Local & central government	0	0	0	0	0	0	0
Domestic general public	0	0	0	0	0	0	0
Recreation	0	0	0	0	0	0	0
Waste treatment and disposal	0	0	0	0	0	0	0
Other	1	0	0	0	0	0	0
No sector responsible	0	0	0	0	0	0	0
Sector under investigation	0	0	0	0	0	0	0
Total	2	1	0	0	0	1	0

Objectives

Classification Item	Status	Year	Reasons
Ecological	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Biological quality elements	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Fish	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Invertebrates	**Good**	2015	
Macrophytes and Phytobenthos Combined	**Good**	2015	
Physico-chemical quality elements	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Acid Neutralising Capacity	**Good**	2015	
Ammonia (Phys-Chem)	**Good**	2015	
Dissolved oxygen	**Good**	2015	
Phosphate	**Good**	2027 - Low	Disproportionately expensive:

Classification Item	Status	Year	Reasons
pH	**Good**	2015	
Hydromorphological Supporting Elements	**Not high**	2015	
Hydrological Regime	**Supports good**	2015	
Supporting elements (Surface Water)	**Not assessed**	2015	
Specific pollutants	**High**	2015	
2,4-dichlorophenoxyacetic acid	**High**	2015	
Copper	**High**	2015	
Chemical	**Good**	2063	Natural conditions: Chemical status recovery time
Priority hazardous substances	**Good**	2063	Natural conditions: Chemical status recovery time
Benzo(a)pyrene	**Good**	2015	
Dioxins and dioxin-like compounds	**Good**	2015	
Heptachlor and cis-Heptachlor epoxide	**Good**	2015	
Hexabromocyclododecane (HBCDD)	**Good**	2015	
Hexachlorobenzene	**Good**	2015	
Hexachlorobutadiene	**Good**	2015	
Mercury and Its Compounds	**Good**	2040	Natural conditions: Chemical status recovery time
Perfluorooctane sulphonate (PFOS)	**Good**	2015	
Polybrominated diphenyl ethers (PBDE)	**Good**	2063	Natural conditions: Chemical status recovery time
Priority substances	**Good**	2015	
Cypermethrin (Priority)	**Good**	2015	
Fluoranthene	**Good**	2015	
Other Pollutants	**Does not require assessment**	2015	

Protected areas

PA Name	Id	Directive	More information
Hamble Estuary Eutrophic NVZ (TraC)	ET3	Nitrates Directive	
Approaches to Southampton Water	UKSW36	Shellfish Water Directive	
River Hamble	UKENRI122	Urban Waste Water Treatment Directive	

Monitoring sites which have been used to classify this water body

Shows which sites were used for classification for which years within each cycle.

Monitoring Site	Cycle 1	Cycle 2	Cycle 3

Monitoring Site	Cycle 1	Cycle 2	Cycle 3
EAST HAMPSHIRE/HAMBLE/TREEFIELD/ 63063		2019	2019, 2022
EAST HAMPSHIRE/HAMBLE/UPSTREAM OF RAILWAY VIADUCT/ 26488		2015, 2016, 2019	2019, 2022
EAST HAMPSHIRE/HAMBLE/DURLEY MILL/ 4278	2014, 2012, 2010, 2013, 2011, 2009	2014, 2015, 2013, 2016, 2019	2019, 2022
R HAMBLE DURLEY G0003743	2012, 2009, 2011, 2010, 2013, 2014	2015, 2013, 2016, 2019, 2014	2019, 2022
200M D/S BISHOPS WALTHAM WWTW G0006006	2012, 2009, 2011, 2010, 2013	2013, 2014	
43125 43125	2012, 2010, 2009, 2013, 2014	2015, 2013, 2016, 2019, 2014	2019, 2022
43196 43196	2011, 2013		
EAST HAMPSHIRE/HAMBLE/LOWER WANGFIELD FARM MEADOW/ 26480		2015, 2016, 2019	2019, 2022
43174 43174	2012, 2010, 2009, 2014, 2011	2013, 2015, 2014, 2016	
EAST HAMPSHIRE/HAMBLE/FROG MILL/ 6272	2014, 2012, 2010, 2013, 2011, 2009	2014, 2015, 2013, 2016, 2019	2019, 2022
EAST HAMPSHIRE/HAMBLE/WANGFIELD LANE/ 26483	2012, 2010, 2013, 2011		

Upstream water bodies

Horton Heath Stream

Moors Stream

Upper Hamble

Downstream water bodies

SOUTHAMPTON WATER

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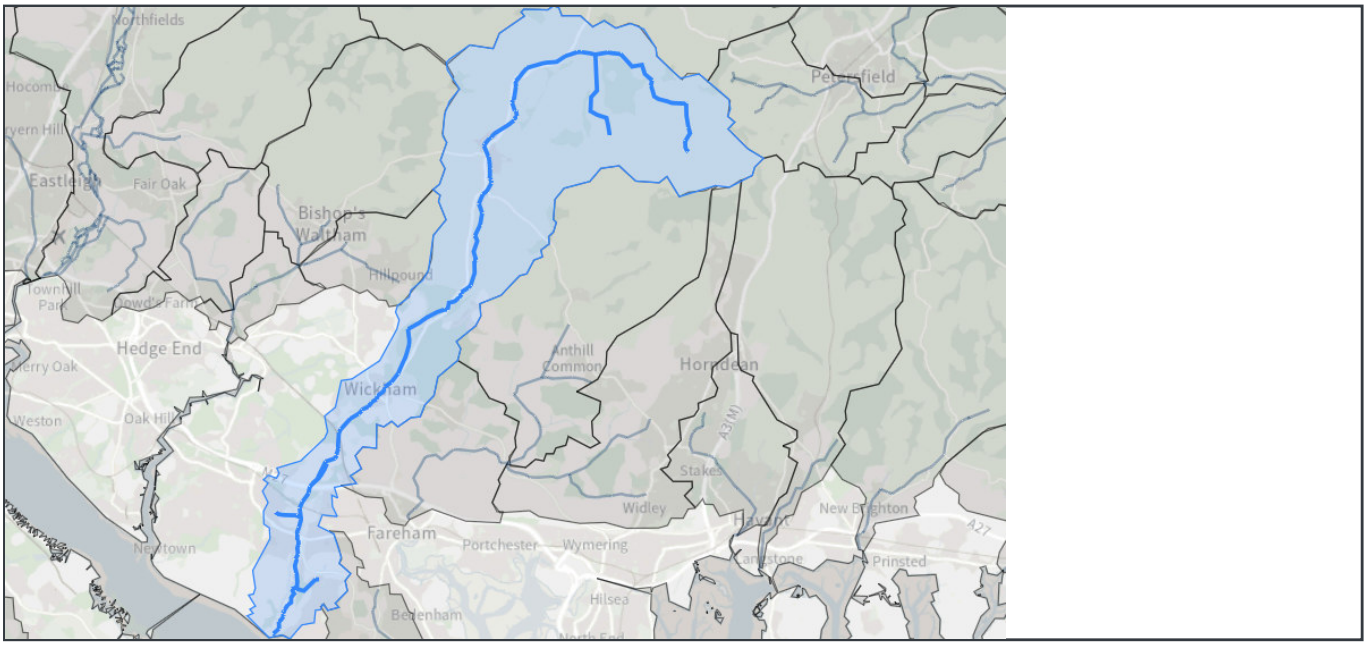
Meon Water Body

Moderate ecological status



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Attributes

Water Body ID	Water Body Type	Hydromorphological designation

NGR SU5378603365	**Catchment area** 108.059 km2	**Surveillance Water Body** No
Length 46.245 km	**Catchment area** 10805.903 ha	

Classifications

Time period: Cycle 3

Classification Item	2019	2022
Ecological	**Good**	**Moderate**
Biological quality elements	**Good**	**Moderate**
Fish	**Good**	**Moderate**
Invertebrates	**High**	**High**
Macrophytes and Phytobenthos Combined	**Good**	**Good**
Macrophytes Sub Element	**Good**	**Good**
Physico-chemical quality elements	**Good**	**Good**
Acid Neutralising Capacity	**High**	**High**
Ammonia (Phys-Chem)	**High**	**High**
Dissolved oxygen	**High**	**High**
Phosphate	**Good**	**Good**
Temperature	**High**	**High**
pH	**High**	**High**
Hydromorphological Supporting Elements	**Not high**	**Not high**
Hydrological Regime	**Does not support good**	**Does not support good**
Morphology	**Not high**	**Not high**
Specific pollutants	**High**	**High**
Chromium (VI)	**High**	**High**
Copper	**High**	**High**
Iron	**High**	**High**
Permethrin	**High**	**High**
Zinc	**High**	**High**
Chemical	Fail	**Does not require assessment**
Priority hazardous substances	Fail	**Does not require assessment**
Benzo(a)pyrene	**Good**	
Cadmium and Its Compounds	**Good**	
Dioxins and dioxin-like compounds	**Good**	
Heptachlor and cis-Heptachlor epoxide	**Good**	
Hexabromocyclododecane (HBCDD)	**Good**	
Hexachlorobenzene	**Good**	
Hexachlorobutadiene	**Good**	

Classification Item	2019	2022
Perfluorooctane sulphonate (PFOS)	**Good**	
Polybrominated diphenyl ethers (PBDE)	Fail	
Priority substances	**Good**	**Does not require assessment**
Cypermethrin (Priority)	**Good**	
Fluoranthene	**Good**	
Lead and Its Compounds	**Good**	
Nickel and Its Compounds	**Good**	
Other Pollutants	**Does not require assessment**	**Does not require assessment**

Why do all water bodies have a chemical status of fail?

Investigations into classification status

Classification Element	Cycle	Year	Status	Outcome
Hydrological Regime	2	2013	Does Not Support Good	Uncertain there is a problem

Reasons for not achieving good (RNAG) and reasons for deterioration (RFD)

All reasons (RFDs and RNAGs) attributed to the classification elements in this water body.

Reason Type	SWMI	Activity	Category	Classification Element	More information
RNAG	Unknown (pending investigation)	Unknown (pending investigation)	Sector under investigation	Fish	Details
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Polybrominated diphenyl ethers (PBDE)	Details
RNAG	Flow	No further action (Flow is below the EFI but NOT causing an ecological failure)	No sector responsible	Hydrological Regime	Details
RNAG	At Risk of Deterioration (RFD only)	Not applicable	No sector responsible	Phosphate	Details
RNAG	Flow	Groundwater abstraction	Water Industry	Hydrological Regime	Details
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Mercury and Its Compounds	Details

Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons for deterioration.

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and rural land management	0	0	0	0	0	0	0
Industry	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0
Navigation	0	0	0	0	0	0	0
Urban and transport	0	0	0	0	0	0	0
Water Industry	0	0	0	0	0	0	0
Local & central government	0	0	0	0	0	0	0
Domestic general public	0	0	0	0	0	0	0
Recreation	0	0	0	0	0	0	0
Waste treatment and disposal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
No sector responsible	0	0	0	0	0	0	0
Sector under investigation	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Objectives

Classification Item	Status	Year	Reasons
Ecological	**Good**	2021	Disproportionately expensive: Disproportionate burdens
Biological quality elements	**Good**	2021	Disproportionately expensive: Disproportionate burdens
Fish	**Good**	2015	
Invertebrates	**Good**	2015	
Macrophytes and Phytobenthos Combined	**Good**	2021	Disproportionately expensive: Disproportionate burdens
Physico-chemical quality elements	**Good**	2015	
Acid Neutralising Capacity	**Good**	2015	
Ammonia (Phys-Chem)	**Good**	2015	
Dissolved oxygen	**Good**	2015	
Phosphate	**Good**	2015	
Temperature	**Good**	2015	
pH	**Good**	2015	

Classification Item	Status	Year	Reasons
Hydrological Regime	**Does not support good**	2015	Disproportionately expensive: Unfavourable balance of costs and benefits
Supporting elements (Surface Water)	**Not assessed**	2015	
Specific pollutants	**High**	2015	
Chromium (VI)	**High**	2015	
Copper	**High**	2015	
Iron	**High**	2015	
Permethrin	**High**	2015	
Zinc	**High**	2015	
Chemical	**Good**	2063	Natural conditions: Chemical status recovery time
Priority hazardous substances	**Good**	2063	Natural conditions: Chemical status recovery time
Benzo(a)pyrene	**Good**	2015	
Cadmium and Its Compounds	**Good**	2015	
Dioxins and dioxin-like compounds	**Good**	2015	
Heptachlor and cis-Heptachlor epoxide	**Good**	2015	
Hexabromocyclododecane (HBCDD)	**Good**	2015	
Hexachlorobenzene	**Good**	2015	
Hexachlorobutadiene	**Good**	2015	
Mercury and Its Compounds	**Good**	2040	Natural conditions: Chemical status recovery time
Perfluorooctane sulphonate (PFOS)	**Good**	2015	
Polybrominated diphenyl ethers (PBDE)	**Good**	2063	Natural conditions: Chemical status recovery time
Priority substances	**Good**	2015	
Cypermethrin (Priority)	**Good**	2015	
Fluoranthene	**Good**	2015	
Lead and Its Compounds	**Good**	2015	
Nickel and Its Compounds	**Good**	2015	
Other Pollutants	**Does not require assessment**	2015	

Protected areas

PA Name	Id	Directive	More information
Hampshire Chalk	G143	Nitrates Directive	
R. Meon NVZ	S527	Nitrates Directive	
Approaches to Southampton Water	UKSW36	Shellfish Water Directive	
Solent And Dorset Coast	UK9020330	Special Protection Area	Natural England
Solent & Southampton Water	UK9011061	Special Protection Area	Natural England
Solent & Southampton Water	UK11063	Ramsar Site	Natural England
Central Solent	UKSW46	Shellfish Water Directive	

Monitoring sites which have been used to classify this water body

Shows which sites were used for classification for which years within each cycle.

Monitoring Site	Cycle 1	Cycle 2	Cycle 3
TRIB TITCHFIELD ABBEY G0003711	2009, 2014, 2012, 2013		
EAST HAMPSHIRE/MEON/HOLYWELL/ 30242	2013		
EAST HAMPSHIRE/MEON/ANJOU BRIDGE/ 4272	2009, 2012, 2010, 2011		
EAST HAMPSHIRE/MEON/MOORHEN TROUT FISHERY/ 4276	2012, 2013, 2014	2019, 2015, 2013, 2016, 2014	2019, 2022
EAST HAMPSHIRE/MEON/MISLINGFORD BEAT/ 28720	2009, 2012, 2010, 2013, 2011, 2014	2019, 2015, 2013, 2016, 2014	2019, 2022
EAST HAMPSHIRE/MEON/ST CLAIR'S FARM/ 30245	2013		
R MEON U/S WARNFORD FISH FARM G0003699	2009, 2012, 2014, 2010, 2013, 2011	2016, 2014, 2015, 2019, 2013	2019, 2022
EAST HAMPSHIRE/MEON/TITCHFIELD CANAL/ 34597	2013		
42202 42202	2014, 2009	2016, 2014, 2015	
R MEON DRAYTON G0003706	2009, 2014, 2012, 2013, 2011		
83418 83418	2010	2019	2019, 2022
R MEON TITCHFIELD G0003685	2009, 2012, 2014, 2010, 2013, 2011	2014, 2015, 2016, 2019, 2013	2019, 2022
R MEON DROXFORD G0003694	2009, 2012, 2014, 2010, 2013, 2011		
43089 43089	2010, 2009	2016	
EAST HAMPSHIRE/MEON/UPPER ROOKESBURY/ 30256	2013		
42891 42891	2014, 2012, 2010, 2013, 2009, 2011	2016, 2014, 2015, 2013	
83417 83417	2014, 2010	2019, 2014, 2016, 2015	2019, 2022
WHITEWOOL STREAM G0003714	2009		
R MEON AT MISLINGFORD G0003692		2019, 2016	2019, 2022
41944 41944	2010, 2009		
41918 41918	2010, 2009		
EAST HAMPSHIRE/MEON/EXTON/ 30241	2013		
EAST HAMPSHIRE/MEON/UPSTREAM OF SILVER SPRINGS/ 27277	2009, 2012, 2010, 2013, 2011, 2014	2019, 2015, 2013, 2016, 2014	2019, 2022

Monitoring Site	Cycle 1	Cycle 2	Cycle 3
EAST HAMPSHIRE/MEON/TITCHFIELD MILL OLD RIVER/ 30246	2013		
EAST HAMPSHIRE/MEON/WICKHAM GARDENS/ 34594	2013		
EAST HAMPSHIRE/MEON/NORTHFIELDS FARM/ 4274	2013		
ABBEY HOUSE EQSD G0006492		2016, 2019	2019
CROFTON TRIB CROFTON G0003710	2009, 2012, 2014, 2010, 2013, 2011		
43258 43258	2010, 2009		
U/S KNOWLE, RIVER MEON G0017036	2009, 2012, 2014, 2010, 2013, 2011	2014, 2015, 2016, 2019, 2013	2019, 2022
EAST HAMPSHIRE/MEON/BEHIND SILVER SPRINGS/ 28780	2009, 2012, 2010, 2013, 2011		
EAST HAMPSHIRE/MEON/RIPLINGTON/ 30244	2013		

Upstream water bodies

Downstream water bodies

Solent

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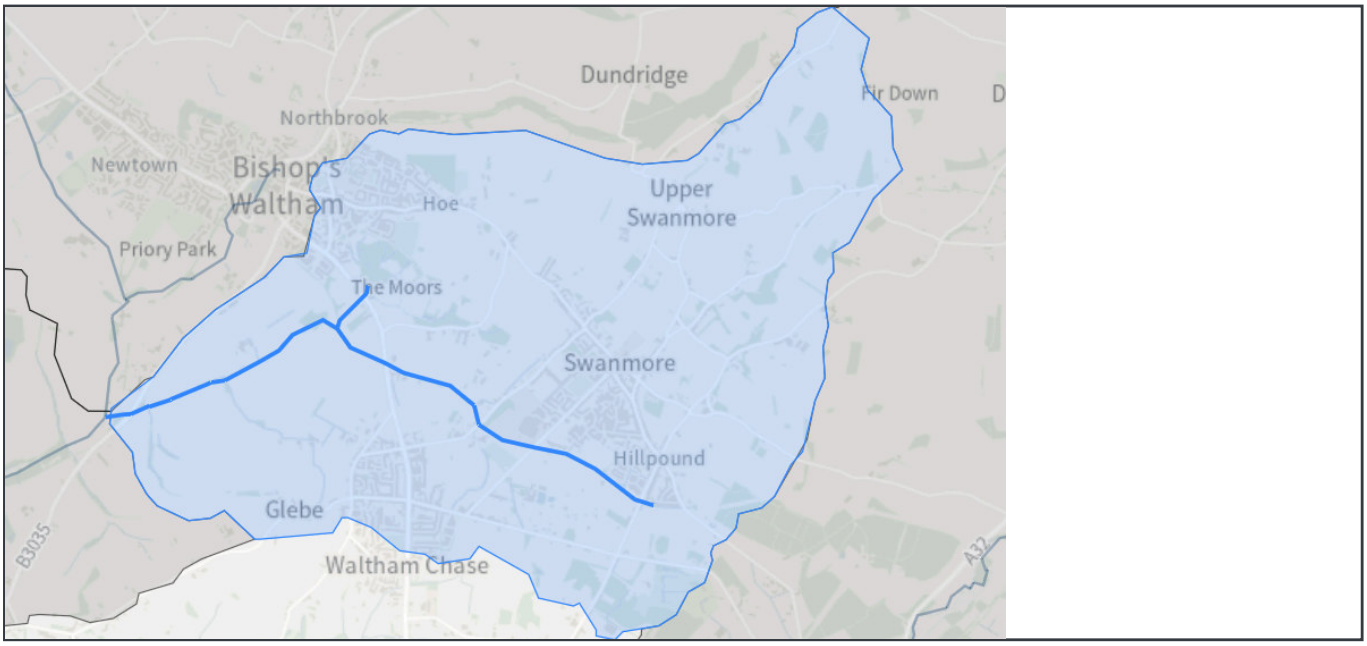
Moors Stream Water Body

Good ecological status



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Attributes

Water Body ID	Water Body Type	Hydromorphological designation

NGR	Catchment area	Length
SU5583416763	1279.92 ha	5.135 km

Catchment area	Surveillance Water Body
12.799 km2	No

Classifications

Time period: Cycle 3

Classification Item	2019	2022
Ecological	**Good**	**Good**
Biological quality elements	**Good**	**Good**
Invertebrates	**Good**	**Good**
Macrophytes and Phytobenthos Combined	**High**	**High**
Macrophytes Sub Element	**High**	**High**
Physico-chemical quality elements	**High**	**High**
Ammonia (Phys-Chem)	**High**	**High**
Dissolved oxygen	**High**	**High**
Phosphate	**High**	**High**
Temperature	**High**	**High**
pH	**High**	**High**
Hydromorphological Supporting Elements	**Not high**	**Not high**
Hydrological Regime	**Does not support good**	**Does not support good**
Morphology	**Not high**	**Not high**
Chemical	Fail	**Does not require assessment**
Priority hazardous substances	Fail	**Does not require assessment**
Benzo(a)pyrene	**Good**	
Dioxins and dioxin-like compounds	**Good**	
Heptachlor and cis-Heptachlor epoxide	**Good**	
Hexabromocyclododecane (HBCDD)	**Good**	
Hexachlorobenzene	**Good**	
Hexachlorobutadiene	**Good**	
Mercury and Its Compounds	Fail	
Perfluorooctane sulphonate (PFOS)	**Good**	
Polybrominated diphenyl ethers (PBDE)	Fail	
Priority substances	**Good**	**Does not require assessment**
Cypermethrin (Priority)	**Good**	
Fluoranthene	**Good**	
Other Pollutants	**Does not require assessment**	**Does not require assessment**

Why do all water bodies have a chemical status of fail?

Investigations into classification status

Classification Element	Cycle	Year	Status	Outcome
Hydrological Regime	2	2013	Does Not Support Good	Uncertain there is a problem

Reasons for not achieving good (RNAG) and reasons for deterioration (RFD)

All reasons (RFDs and RNAGs) attributed to the classification elements in this water body.

Reason Type	SWMI	Activity	Category	Classification Element	More information
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Polybrominated diphenyl ethers (PBDE)	Details
RNAG	Flow	No further action (Flow is below the EFI but NOT causing an ecological failure)	No sector responsible	Hydrological Regime	Details
RNAG	Flow	Groundwater abstraction	Water Industry	Hydrological Regime	Details
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Mercury and Its Compounds	Details

Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons for deterioration.

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and rural land management	0	0	0	0	0	0	0
Industry	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0
Navigation	0	0	0	0	0	0	0
Urban and transport	0	0	0	0	0	0	0
Water Industry	0	0	0	0	0	0	0
Local & central government	0	0	0	0	0	0	0
Domestic general public	0	0	0	0	0	0	0
Recreation	0	0	0	0	0	0	0

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Other	0	0	0	0	0	0	0
No sector responsible	0	0	0	0	0	0	0
Sector under investigation	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Objectives

Classification Item	Status	Year	Reasons
Ecological	**Good**	2015	
Biological quality elements	**Good**	2015	
Invertebrates	**Good**	2015	
Macrophytes and Phytobenthos Combined	**Good**	2015	
Physico-chemical quality elements	**Good**	2015	
Ammonia (Phys-Chem)	**Good**	2015	
Dissolved oxygen	**Good**	2015	
Phosphate	**Good**	2015	
Temperature	**Good**	2015	
pH	**Good**	2015	
Hydromorphological Supporting Elements	**Not high**	2015	
Hydrological Regime	**Does not support good**	2015	Disproportionately expensive: Unfavourable balance of costs and benefits
Supporting elements (Surface Water)	**Not assessed**	2015	
Specific pollutants	**Not assessed**	2015	
Chemical	**Good**	2063	Natural conditions: Chemical status recovery time
Priority hazardous substances	**Good**	2063	Natural conditions: Chemical status recovery time
Benzo(a)pyrene	**Good**	2015	
Dioxins and dioxin-like compounds	**Good**	2015	
Heptachlor and cis-Heptachlor epoxide	**Good**	2015	
Hexabromocyclododecane (HBCDD)	**Good**	2015	
Hexachlorobenzene	**Good**	2015	
Hexachlorobutadiene	**Good**	2015	
Mercury and Its Compounds	**Good**	2040	Natural conditions: Chemical status recovery time
Perfluorooctane sulphonate (PFOS)	**Good**	2015	
Polybrominated diphenyl ethers (PBDE)	**Good**	2063	Natural conditions: Chemical status recovery time

Classification Item	Status	Year	Reasons
Fluoranthene	**Good**	2015	
Other Pollutants	**Does not require assessment**	2015	

Protected areas

PA Name	Id	Directive	More information
Hamble Estuary Eutrophic NVZ (TraC)	ET3	Nitrates Directive	
Hampshire Chalk	G143	Nitrates Directive	

Monitoring sites which have been used to classify this water body

Shows which sites were used for classification for which years within each cycle.

Monitoring Site	Cycle 1	Cycle 2	Cycle 3
MOORS STREAM G0003766	2009, 2014, 2012, 2010, 2013	2019, 2016, 2014, 2015, 2013	2019, 2022
166163 166163	2014	2014, 2016, 2015	
42933 42933	2011, 2014, 2012, 2010, 2009	2016, 2019, 2014, 2015	2019

Upstream water bodies

Downstream water bodies

Main River Hamble

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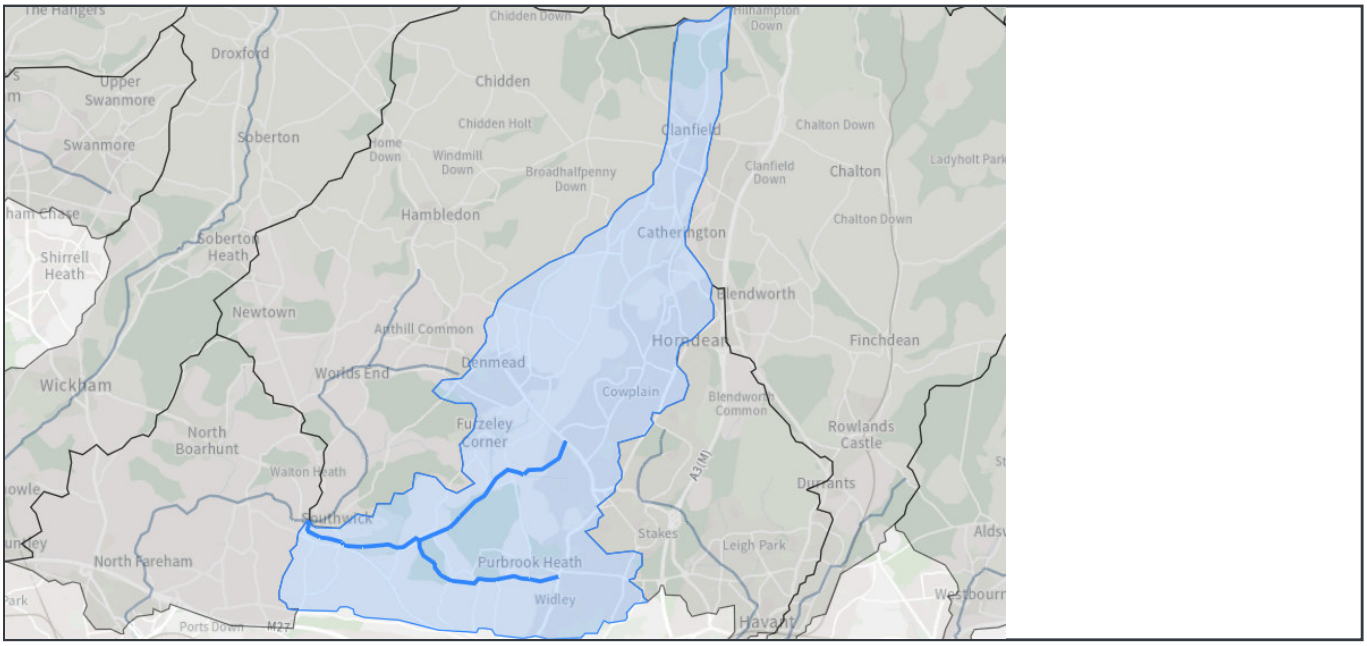
Potwell Trib Water Body

Moderate ecological status



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Attributes

Water Body ID	Water Body Type	Hydromorphological designation

NGR	Catchment area	Length
SU6581809592	4224.61 ha	10.949 km

Catchment area	Surveillance Water Body
42.246 km2	No

Classifications

Time period: Cycle 3

Classification Item	2019	2022
Ecological	**Moderate**	**Moderate**
Biological quality elements	**Poor**	**Poor**
Fish	**Poor**	**Poor**
Invertebrates	**Good**	**Good**
Macrophytes and Phytobenthos Combined	**Moderate**	**Moderate**
Macrophytes Sub Element	**Poor**	**Poor**
Phytobenthos Sub Element	**Moderate**	**Moderate**
Physico-chemical quality elements	**Moderate**	**Moderate**
Ammonia (Phys-Chem)	**High**	**High**
Dissolved oxygen	**High**	**High**
Phosphate	**Moderate**	**Moderate**
Temperature	**High**	**High**
pH	**High**	**High**
Supporting elements (Surface Water)	**Moderate**	**Moderate**
Mitigation Measures Assessment	**Moderate or less**	**Moderate or less**
Specific pollutants	**High**	**High**
Copper	**High**	**High**
Triclosan	**High**	**High**
Zinc	**High**	**High**
Chemical	Fail	**Does not require assessment**
Priority hazardous substances	Fail	**Does not require assessment**
Benzo(a)pyrene	**Good**	
Benzo(b)fluoranthene	**Good**	
Benzo(g-h-i)perylene	Fail	
Benzo(k)fluoranthene	**Good**	
Cadmium and Its Compounds	**Good**	
Di(2-ethylhexyl)phthalate (Priority hazardous)	**Good**	
Dioxins and dioxin-like compounds	**Good**	
Heptachlor and cis-Heptachlor epoxide	**Good**	
Hexabromocyclododecane (HBCDD)	**Good**	
Hexachlorobenzene	**Good**	

Classification Item	2019	2022
Mercury and Its Compounds	Fail	
Nonylphenol	**Good**	
Perfluorooctane sulphonate (PFOS)	Fail	
Polybrominated diphenyl ethers (PBDE)	Fail	
Priority substances	**Good**	**Does not require assessment**
Cypermethrin (Priority)	**Good**	
Fluoranthene	**Good**	
Lead and Its Compounds	**Good**	
Nickel and Its Compounds	**Good**	
Other Pollutants	**Does not require assessment**	**Does not require assessment**

Why do all water bodies have a chemical status of fail?

Investigations into classification status

Classification Element	Cycle	Year	Status	Outcome
Nonylphenol	2	2013	Fail	Uncertain there is a problem
Di(2-ethylhexyl)phthalate (Priority hazardous)	2	2013	Fail	Uncertain there is a problem
Cadmium and Its Compounds	2	2013	Fail	Uncertain there is a problem
Macrophytes and Phytobenthos Combined	2	2014	Moderate	Uncertain there is a problem
Phosphate	2	2016	Good	Uncertain there is a problem
Fish	2	2014	Poor	Quite certain there is a problem
Triclosan	2	2013	Moderate	Uncertain there is a problem

Reasons for not achieving good (RNAG) and reasons for deterioration (RFD)

All reasons (RFDs and RNAGs) attributed to the classification elements in this water body.

Reason Type	SWMI	Activity	Category	Classification Element	More information
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Mercury and Its Compounds	Details
RNAG	Unknown (pending investigation)	Unknown (pending investigation)	Sector under investigation	Benzo(g-h-i)perylene	Details
RNAG	Point source	Trade/Industry discharge	Industry	Macrophytes and Phytobenthos Combined	Details
RNAG	Unknown (pending investigation)	Unknown (pending investigation)	Sector under investigation	Perfluorooctane sulphonate (PFOS)	Details
RFD	Monitoring Site Changed (RFD only)	Not applicable	No sector responsible	Phosphate	Details
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Polybrominated diphenyl ethers (PBDE)	Details

Reason Type	SWMI	Activity	Category	Classification Element	More information
RNAG	Physical modification	Barriers - ecological discontinuity	Other	Fish	Details
RFD	Diffuse source	Poor soil management	Agriculture and rural land management	Phosphate	Details
RFD	Diffuse source	Urbanisation - urban development	Urban and transport	Phosphate	Details
RFD	Point source	Trade/Industry discharge	Industry	Phosphate	Details

Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons for deterioration.

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and rural land management	0	0	0	0	0	0	0
Industry	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0
Navigation	0	0	0	0	0	0	0
Urban and transport	0	0	0	0	0	0	0
Water Industry	1	0	0	0	0	0	0
Local & central government	0	0	0	0	0	0	0
Domestic general public	0	0	0	0	0	0	0
Recreation	0	0	0	0	0	0	0
Waste treatment and disposal	0	0	0	0	0	0	0
Other	1	0	0	0	0	0	0
No sector responsible	0	0	0	0	0	0	0
Sector under investigation	0	0	0	0	0	0	0
Total	2	0	0	0	0	0	0

Objectives

Classification Item	Status	Year	Reasons
Ecological	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Biological quality elements	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Fish	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Invertebrates	**Good**	2015	
Macrophytes and Phytobenthos Combined	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Physico-chemical quality elements	**Good**	2015	
Ammonia (Phys-Chem)	**Good**	2015	
Dissolved oxygen	**Good**	2015	
Phosphate	**Good**	2015	
Temperature	**Good**	2015	
pH	**Good**	2015	
Hydromorphological Supporting Elements	**Not assessed**	2015	
Supporting elements (Surface Water)	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Mitigation Measures Assessment	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Specific pollutants	**High**	2015	
Copper	**High**	2015	
Triclosan	**High**	2015	
Zinc	**High**	2015	
Chemical	**Good**	2063	Natural conditions: Chemical status recovery time; Technically infeasible: No known technical solution is available
Priority hazardous substances	**Good**	2063	Natural conditions: Chemical status recovery time; Technically infeasible: No known technical solution is available
Benzo(a)pyrene	**Good**	2015	
Benzo(b)fluoranthene	**Good**	2015	
Benzo(g-h-i)perylene	**Good**	2033	Technically infeasible: No known technical solution is available
Benzo(k)fluoranthene	**Good**	2015	
Cadmium and Its Compounds	**Good**	2015	
Di(2-ethylhexyl)phthalate (Priority hazardous)	**Good**	2015	
Dioxins and dioxin-like compounds	**Good**	2015	
Heptachlor and cis-Heptachlor epoxide	**Good**	2015	

Classification Item	Status	Year	Reasons
Hexachlorobutadiene	**Good**	2015	
Mercury and Its Compounds	**Good**	2040	Natural conditions: Chemical status recovery time
Nonylphenol	**Good**	2015	
Perfluorooctane sulphonate (PFOS)	**Good**	2039	Technically infeasible: No known technical solution is available
Polybrominated diphenyl ethers (PBDE)	**Good**	2063	Natural conditions: Chemical status recovery time
Priority substances	**Good**	2015	
Cypermethrin (Priority)	**Good**	2015	
Fluoranthene	**Good**	2015	
Lead and Its Compounds	**Good**	2015	
Nickel and Its Compounds	**Good**	2015	
Other Pollutants	**Does not require assessment**	2015	

Protected areas

PA Name	Id	Directive	More information
Chichester,Langstone and Portsmouth Harbours Eutrophic NVZ (TraC)	ET2	Nitrates Directive	

Monitoring sites which have been used to classify this water body

Shows which sites were used for classification for which years within each cycle.

Monitoring Site	Cycle 1	Cycle 2	Cycle 3
EAST HAMPSHIRE/WALLINGTON/CHEESEMAN'S BRIDGE/ 26458	2012, 2010, 2013, 2011, 2009		
CHEESEMANS BR. STR @ POTWELL G0003669	2009, 2014	2015, 2016, 2014	
101021 101021		2016, 2015	
EAST HAMPSHIRE/WALLINGTON/NEWLANDS FARM/ 16233	2014, 2010, 2011, 2009	2014, 2015, 2016, 2019	2019, 2022
42459 42459	2012, 2010, 2009, 2014, 2013, 2011	2015, 2014, 2013, 2016	
SHEEPWASH STREAM SHEEPWASH FM G0003674	2009, 2014	2015, 2016, 2019, 2014	2019
CHEESEMANS BRIDGE STREAM AT CHEESEMANS B G0003667		2019, 2016, 2015	2019
EAST HAMPSHIRE/WALLINGTON/POTWELL FORD/ 3479	2014, 2012, 2010, 2011, 2009	2014, 2015, 2016, 2019	2019, 2022
44280 44280	2012, 2009, 2013, 2011, 2014	2015, 2013, 2016,	

Upstream water bodies

Downstream water bodies

Wallington below Southwick

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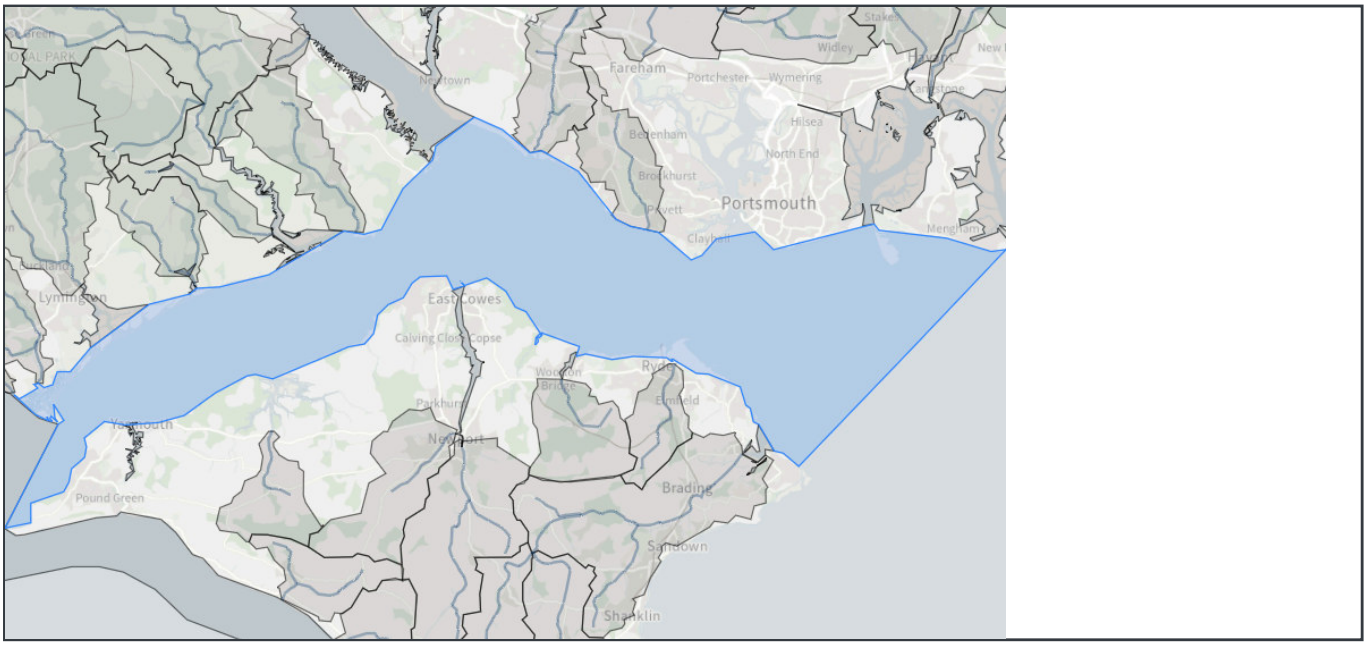
Solent Water Body

Moderate ecological status



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Attributes

Water Body ID	Water Body Type	Hydromorphological designation

NGR	Surface area	Surface area
SZ6253694364	25993.588 ha	259.936 km2

Surveillance Water Body
Yes

Classifications

Time period: Cycle 3

Classification Item	2019	2022
Ecological	**Moderate**	**Moderate**
Biological quality elements	**Moderate**	**Moderate**
Angiosperms	**Moderate**	**Moderate**
Saltmarsh	**Moderate**	**Moderate**
Seagrass	**High**	**Good**
Invertebrates	**Good**	**Good**
Imposex	**Good**	**Good**
Infaunal Quality Index	**High**	**High**
Macroalgae	**Good**	**Good**
Opportunistic Macroalgae	**Good**	**Good**
Phytoplankton	**Good**	**Good**
Physico-chemical quality elements	**Moderate**	**Moderate**
Dissolved Inorganic Nitrogen	**Moderate**	**Moderate**
Dissolved oxygen	**High**	**High**
Supporting elements (Surface Water)	**Good**	**Good**
Mitigation Measures Assessment	**Good**	**Good**
Specific pollutants	**High**	**High**
Arsenic	**High**	**High**
Chromium (VI)	**High**	**High**
Copper	**High**	**High**
Iron	**High**	**High**
Un-ionised ammonia	**High**	**High**
Zinc	**High**	**High**
Chemical	Fail	**Does not require assessment**
Priority hazardous substances	Fail	**Does not require assessment**
Benzo(a)pyrene	**Good**	
Benzo(b)fluoranthene	**Good**	
Benzo(g-h-i)perylene	**Good**	
Benzo(k)fluoranthene	**Good**	
Cadmium and Its Compounds	**Good**	
Dioxin and dioxin like compounds	**Good**	

Classification Item	2019	2022
Hexabromocyclododecane (HBCDD)	**Good**	
Hexachlorobenzene	**Good**	
Hexachlorobutadiene	**Good**	
Mercury and Its Compounds	**Fail**	
Nonylphenol	**Good**	
Perfluorooctane sulphonate (PFOS)	**Good**	
Polybrominated diphenyl ethers (PBDE)	**Fail**	
Tributyltin Compounds	**Good**	
Priority substances	**Good**	**Does not require assessment**
Fluoranthene	**Good**	
Lead and Its Compounds	**Good**	
Nickel and Its Compounds	**Good**	
Octylphenol	**Good**	
Trichloromethane	**Good**	
Other Pollutants	**Does not require assessment**	**Does not require assessment**

Why do all water bodies have a chemical status of fail?

Investigations into classification status

Classification Element	Cycle	Year	Status	Outcome
Dissolved Inorganic Nitrogen	2	2015	Moderate	Certain there is not a problem
Dissolved Inorganic Nitrogen	3	2019	Moderate	Certain there is not a problem
Dissolved Inorganic Nitrogen	3	2022	Moderate	Certain there is not a problem

Reasons for not achieving good (RNAG) and reasons for deterioration (RFD)

All reasons (RFDs and RNAGs) attributed to the classification elements in this water body.

Reason Type	SWMI	Activity	Category	Classification Element	More information
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Polybrominated diphenyl ethers (PBDE)	Details
RNAG	Physical modification	Coastal squeeze	Sector under investigation	Angiosperms	Details
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Mercury and Its Compounds	Details

Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and rural land management	0	0	0	0	0	0	0
Industry	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0
Navigation	0	0	0	0	0	0	0
Urban and transport	0	0	0	0	0	0	0
Water Industry	0	0	0	0	0	0	0
Local & central government	0	0	0	0	0	0	0
Domestic general public	0	0	0	0	0	0	0
Recreation	0	0	0	0	0	0	0
Waste treatment and disposal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
No sector responsible	0	0	0	0	0	0	0
Sector under investigation	1	0	0	0	0	0	0
Total	1	0	0	0	0	0	0

Objectives

Classification Item	Status	Year	Reasons
Ecological	**Moderate**	2015	Disproportionately expensive: Disproportionate burdens; Disproportionately expensive: Unfavourable balance of costs and benefits; Good status prevented by A/HMWB designated use: Action to get biological element to good would have significant adverse impact on use
Biological quality elements	**Moderate**	2021	Good status prevented by A/HMWB designated use: Action to get biological element to good would have significant adverse impact on use
Angiosperms	**Moderate**	2021	Good status prevented by A/HMWB designated use: Action to get biological element to good would have significant adverse impact on use
Invertebrates	**Good**	2015	
Macroalgae	**Good**	2015	
Phytoplankton	**Good**	2015	
Physico-chemical quality elements	**Moderate**	2015	Disproportionately expensive: Unfavourable balance of costs and benefits

Classification Item	Status	Year	Reasons
Dissolved oxygen	**Good**	2015	
Hydromorphological Supporting Elements	**Not assessed**	2015	
Supporting elements (Surface Water)	**Good**	2021	Disproportionately expensive: Disproportionate burdens
Mitigation Measures Assessment	**Good**	2021	Disproportionately expensive: Disproportionate burdens
Specific pollutants	**High**	2015	
Arsenic	**High**	2015	
Chromium (VI)	**High**	2015	
Copper	**High**	2015	
Iron	**High**	2015	
Un-ionised ammonia	**High**	2015	
Zinc	**High**	2015	
Chemical	**Good**	2063	Disproportionately expensive: Disproportionate burdens; Natural conditions: Chemical status recovery time
Priority hazardous substances	**Good**	2063	Disproportionately expensive: Disproportionate burdens; Natural conditions: Chemical status recovery time
Benzo(a)pyrene	**Good**	2015	
Benzo(b)fluoranthene	**Good**	2015	
Benzo(g-h-i)perylene	**Good**	2015	
Benzo(k)fluoranthene	**Good**	2015	
Cadmium and Its Compounds	**Good**	2015	
Dioxins and dioxin-like compounds	**Good**	2015	
Heptachlor and cis-Heptachlor epoxide	**Good**	2021	Natural conditions: Chemical status recovery time
Hexabromocyclododecane (HBCDD)	**Good**	2015	
Hexachlorobenzene	**Good**	2015	
Hexachlorobutadiene	**Good**	2015	
Mercury and Its Compounds	**Good**	2040	Natural conditions: Chemical status recovery time
Nonylphenol	**Good**	2015	
Perfluorooctane sulphonate (PFOS)	**Good**	2015	
Polybrominated diphenyl ethers (PBDE)	**Good**	2063	Natural conditions: Chemical status recovery time
Tributyltin Compounds	**Good**	2021	Disproportionately expensive: Disproportionate burdens
Priority substances	**Good**	2015	
Fluoranthene	**Good**	2015	
Lead and Its Compounds	**Good**	2015	
Nickel and Its Compounds	**Good**	2015	
Octylphenol	**Good**	2015	
Trichloromethane	**Good**	2015	

Protected areas

PA Name	Id	Directive	More information
Hamble Estuary Eutrophic NVZ (TraC)	ET3	Nitrates Directive	
Chichester Harbour	UKENCA56	Urban Waste Water Treatment Directive	
Cowes and Medina	UKSW45	Shellfish Water Directive	
Eastney	UK16500	Bathing Water Directive	
Lymington and Sowley	UKSW40	Shellfish Water Directive	
Chichester,Langstone and Portsmouth Harbours Eutrophic NVZ (TraC)	ET2	Nitrates Directive	
Chichester And Langstone Harbours	UK9011011	Special Protection Area	Natural England
Solent Maritime	UK0030059	Special Area of Conservation	Natural England
Chichester And Langstone Harbours	UK11013	Ramsar Site	Natural England
Approaches to Southampton Water	UKSW36	Shellfish Water Directive	
Solent And Dorset Coast	UK9020330	Special Protection Area	Natural England
South Wight Maritime	UK0030061	Special Area of Conservation	Natural England
Solent & Southampton Water	UK9011061	Special Protection Area	Natural England
Solent & Southampton Water	UK11063	Ramsar Site	Natural England
Solent & Isle Of Wight Lagoons	UK0017073	Special Area of Conservation	Natural England
Pennington	UKSW41	Shellfish Water Directive	
Langstone Harbour	UKSW33	Shellfish Water Directive	
Ryde	UK17900	Bathing Water Directive	
Yarmouth	UKSW42	Shellfish Water Directive	
Newtown harbour, Mediina Estuary and Eastern Yar Eutrophic NVZ (TraC)	ET7	Nitrates Directive	
Stokes Bay	UK16700	Bathing Water Directive	
Lepe Middle Bank	UKSW38	Shellfish Water Directive	
Central Solent	UKSW46	Shellfish Water Directive	
East Cowes	UK17850	Bathing Water Directive	
Stanswood Bay	UKSW37	Shellfish Water Directive	
Calshot	UK16900	Bathing Water Directive	
Medina Estuary	UKENCA121	Urban Waste Water Treatment Directive	
Newtown	UKSW43	Shellfish Water Directive	
Newtown Harbour	UKENCA124	Urban Waste Water Treatment Directive	
Colwell Bay	UK17600	Bathing Water Directive	
Ryde	UKSW47	Shellfish Water Directive	
Beachlands West	UK16400	Bathing Water Directive	
Eastoke	UK16300	Bathing Water Directive	
Lepe	UK17000	Bathing Water Directive	
Lee-on-Solent	UK16800	Bathing Water Directive	

PA Name	Id	Directive	More information
Hillhead	UK16850	Bathing Water Directive	
Beachlands Central	UK16350	Bathing Water Directive	
Spithead and Stokes Bay	UKSW48	Shellfish Water Directive	
Cowes	UK17800	Bathing Water Directive	
Totland Bay	UK17500	Bathing Water Directive	
Gurnard	UK17700	Bathing Water Directive	
Southsea East	UK16600	Bathing Water Directive	

Monitoring sites which have been used to classify this water body

Shows which sites were used for classification for which years within each cycle.

Monitoring Site	Cycle 1	Cycle 2	Cycle 3
RYDE-SHELLFISH WATER Y0017477	2011, 2010, 2013, 2012	2016, 2019, 2015	2019
NR EASTNEY LONG SEA OUTFALL G0016873	2011, 2010, 2013, 2009, 2012		
NEWTOWN BANK-SHELLFISH WATER Y0017475	2011, 2010, 2013, 2012	2016, 2019, 2015	2019
TOTLAND-SHELLFISH WATER Y0004406	2011, 2010, 2013, 2012	2015	
SPITHEAD AND STOKES BAY-SFW G0003721	2011, 2010, 2013, 2012	2015	
EAST BRAMBLES SAMPLING POINT G0003532	2013, 2009, 2011, 2010, 2012	2016, 2019, 2015	2019
LEPE MIDDLE BANK-SFW G0003765	2011, 2010, 2013, 2012	2015	
LYMINGTON-SHELLFISH WATER G0003696	2011, 2010, 2013, 2012	2015	
SOWLEY-SHELLFISH WATER G0003995	2011, 2010, 2012		
COWES-SHELLFISH WATER Y0004367	2011, 2010, 2013, 2012	2015	
CALSHOT/STANSWOOD-SFW G0003681	2011, 2010, 2013, 2012	2015	
PENNINGTON-SHELLFISH WATER G0003751	2011, 2010, 2013, 2012	2016, 2019, 2015	2019
D/S PEEL COMMON EMZ G0003495	2011, 2010, 2013, 2009, 2012		
YARMOUTH-SHELLFISH WATER Y0017474	2011, 2010, 2013, 2012	2015	
D/S PENNINGTON SO EMZ G0006011	2011, 2009, 2010, 2013, 2012	2015, 2016, 2019	2019
MOTHER BANK/OSBORNE BAY Y0004278	2013	2016, 2019, 2015	2019
CENTRAL SOLENT-SHELLFISH WATER G0003715	2011, 2010, 2013, 2012	2015	

Upstream water bodies

- Danes Stream
- Sowley Stream
- Monktonmead Brook
- Alver
- Meon
- Dark Water
- Avon Water

Downstream water bodies

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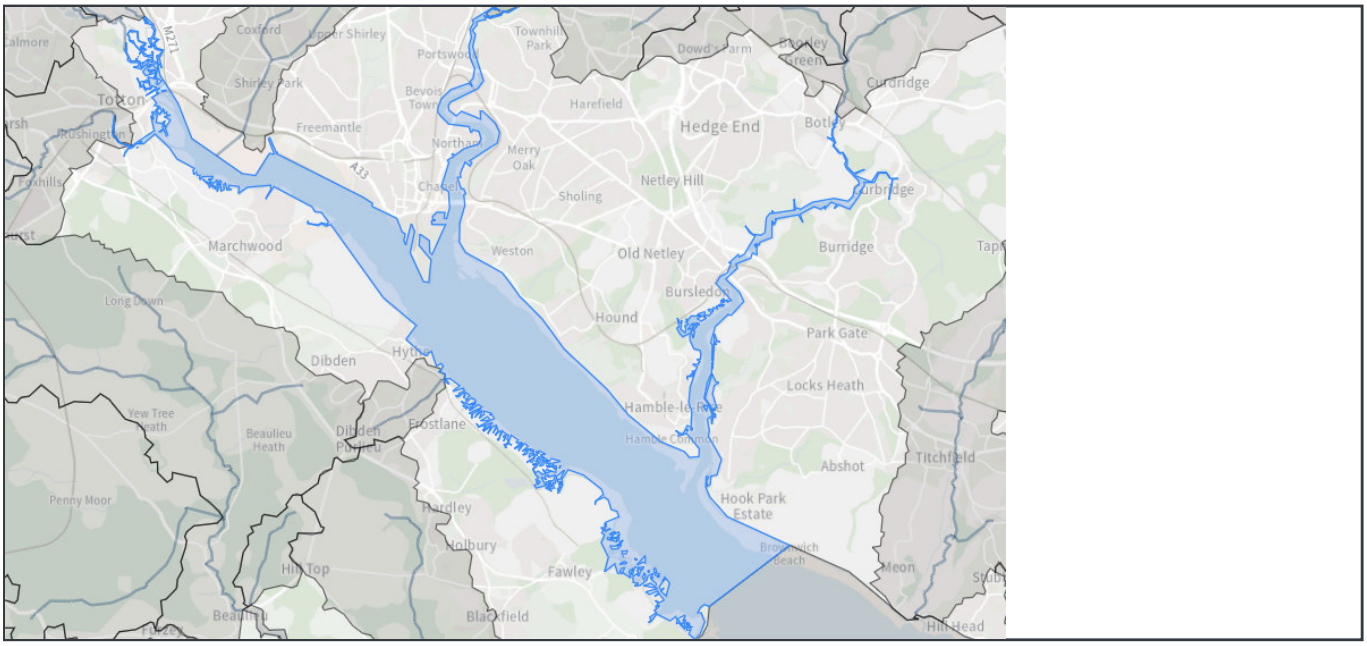
SOUTHAMPTON WATER Water Body

Moderate ecological status



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Related links

Plan maps on ArcGIS online
Flood risk management plans

Attributes

Water Body ID	Water Body Type	Hydromorphological designation

NGR	Surveillance Water Body	Surface area
SU4435507905	Yes	31.235 km2

Surface area
3123.51 ha

Classifications

Time period: Cycle 3

Classification Item	2019	2022
Ecological	**Moderate**	**Moderate**
Biological quality elements	**Good**	**Good**
Angiosperms	**Good**	**Good**
Saltmarsh	**Good**	**Good**
Fish	**Good**	**Good**
Invertebrates	**Good**	**Good**
Infaunal Quality Index	**Good**	**Good**
Macroalgae	**Good**	**Good**
Fucoid Extent	**Good**	
Opportunistic Macroalgae	**Good**	**Good**
Phytoplankton	**Good**	**Good**
Physico-chemical quality elements	**Moderate**	**Moderate**
Dissolved Inorganic Nitrogen	**Moderate**	**Moderate**
Dissolved oxygen	**High**	**High**
Hydromorphological Supporting Elements	**Not high**	**Not high**
Hydrological Regime	**Supports good**	**Supports good**
Supporting elements (Surface Water)	**Moderate**	**Moderate**
Mitigation Measures Assessment	**Moderate or less**	**Moderate or less**
Specific pollutants	**High**	**High**
2,4-dichlorophenol	**High**	**High**
2,4-dichlorophenoxyacetic acid	**High**	**High**
Arsenic	**High**	**High**
Chlorothalonil	**High**	**High**
Chromium (VI)	**High**	**High**
Copper	**High**	**High**
Diazinon	**High**	**High**
Dimethoate	**High**	**High**
Iron	**High**	**High**
Linuron	**High**	**High**
Mecoprop	**High**	**High**
Pendimethalin	**High**	**High**

Classification Item	2019	2022
Phenol	High	High
Toluene	High	High
Triclosan	High	High
Un-ionised ammonia	High	High
Zinc	High	High
Chemical	Fail	**Does not require assessment**
Priority hazardous substances	Fail	**Does not require assessment**
Anthracene	Good	
Benzo(a)pyrene	Good	
Benzo(b)fluoranthene	Good	
Benzo(g-h-i)perylene	Fail	
Benzo(k)fluoranthene	Good	
Cadmium and Its Compounds	Good	
Di(2-ethylhexyl)phthalate (Priority hazardous)	Good	
Dioxins and dioxin-like compounds	Good	
Endosulfan	Good	
Heptachlor and cis-Heptachlor epoxide	Good	
Hexabromocyclododecane (HBCDD)	Good	
Hexachlorobenzene	Good	
Hexachlorobutadiene	Good	
Hexachlorocyclohexane	Good	
Mercury and Its Compounds	Fail	
Nonylphenol	Good	
Pentachlorobenzene	Good	
Perfluorooctane sulphonate (PFOS)	Good	
Polybrominated diphenyl ethers (PBDE)	Fail	
Quinoxyfen	Good	
Tributyltin Compounds	Good	
Trifluralin (Priority hazardous)	Good	
Priority substances	Good	**Does not require assessment**
1,2-dichloroethane	Good	
Aclonifen	Good	
Alachlor	Good	
Atrazine	Good	
Benzene	Good	
Bifenox	Good	
Chlorfenvinphos	Good	
Chlorpyrifos	Good	
Cybutryne	Good	
Dichloromethane	Good	

Classification Item	2019	2022
Fluoranthene	**Good**	
Isoproturon	**Good**	
Lead and Its Compounds	**Good**	
Napthalene	**Good**	
Nickel and Its Compounds	**Good**	
Octylphenol	**Good**	
Pentachlorophenol	**Good**	
Simazine	**Good**	
Terbutryn	**Good**	
Trichlorobenzenes	**Good**	
Trichloromethane	**Good**	
Other Pollutants	**Good**	**Does not require assessment**
Aldrin, Dieldrin, Endrin & Isodrin	**Good**	
Carbon Tetrachloride	**Good**	
DDT Total	**Good**	
Tetrachloroethylene	**Good**	
Trichloroethylene	**Good**	
para - para DDT	**Good**	

Why do all water bodies have a chemical status of fail?

Investigations into classification status

Classification Element	Cycle	Year	Status	Outcome
Fish	2	2013	Poor	Uncertain there is a problem
Tributyltin Compounds	2	2013	Fail	Very certain there is a problem

Reasons for not achieving good (RNAG) and reasons for deterioration (RFD)

All reasons (RFDs and RNAGs) attributed to the classification elements in this water body.

Reason Type	SWMI	Activity	Category	Classification Element	More information
RNAG	Diffuse source	Poor nutrient management	Agriculture and rural land management	Dissolved Inorganic Nitrogen	Details
RNAG	Point source	Sewage discharge (continuous)	Water Industry	Dissolved Inorganic Nitrogen	Details
RNAG	Physical modification	Coast protection use	Local and Central Government	Mitigation Measures Assessment	Details
RNAG	Physical modification	Flood protection use	Local and Central Government	Mitigation Measures Assessment	Details
RNAG	Unknown (pending investigation)	Unknown (pending investigation)	Sector under investigation	Benzo(g-h-i)perylene	Details

Reason Type	SWMI	Activity	Category	Classification Element	More information
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Mercury and Its Compounds	Details

Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons for deterioration.

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and rural land management	0	0	0	0	0	1	0
Industry	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0
Navigation	0	0	0	0	0	0	0
Urban and transport	0	0	0	0	0	0	0
Water Industry	0	1	0	0	0	0	0
Local & central government	2	0	0	0	0	0	0
Domestic general public	0	0	0	0	0	0	0
Recreation	0	0	0	0	0	0	0
Waste treatment and disposal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
No sector responsible	0	0	0	0	0	0	0
Sector under investigation	0	0	0	0	0	0	0
Total	2	1	0	0	0	1	0

Objectives

Classification Item	Status	Year	Reasons
Ecological	**Moderate**	2015	Disproportionately expensive: Disproportionate burdens; Disproportionately expensive: Unfavourable balance of costs and benefits
Biological quality elements	**Good**	2015	

Classification Item	Status	Year	Reasons
Fish	**Good**	2015	
Invertebrates	**Good**	2015	
Macroalgae	**Good**	2015	
Phytoplankton	**Good**	2015	
Physico-chemical quality elements	**Moderate**	2015	Disproportionately expensive: Unfavourable balance of costs and benefits
Dissolved Inorganic Nitrogen	**Moderate**	2015	Disproportionately expensive: Unfavourable balance of costs and benefits
Dissolved oxygen	**Good**	2015	
Hydromorphological Supporting Elements	**Not high**	2015	
Hydrological Regime	**Supports good**	2015	
Supporting elements (Surface Water)	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Mitigation Measures Assessment	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Specific pollutants	**High**	2015	
2,4-dichlorophenol	**High**	2015	
2,4-dichlorophenoxyacetic acid	**High**	2015	
Arsenic	**High**	2015	
Chlorothalonil	**High**	2015	
Chromium (VI)	**High**	2015	
Copper	**High**	2015	
Diazinon	**High**	2015	
Dimethoate	**High**	2015	
Iron	**High**	2015	
Linuron	**High**	2015	
Mecoprop	**High**	2015	
Pendimethalin	**High**	2015	
Permethrin	**High**	2015	
Phenol	**High**	2015	
Toluene	**High**	2015	
Triclosan	**High**	2015	
Un-ionised ammonia	**High**	2015	
Zinc	**High**	2015	
Chemical	**Good**	2063	Disproportionately expensive: Disproportionate burdens; Natural conditions: Chemical status recovery time; Technically infeasible: No known technical solution is available
Priority hazardous substances	**Good**	2063	Disproportionately expensive: Disproportionate burdens; Natural conditions: Chemical status recovery time; Technically infeasible: No known technical solution is

Classification Item	Status	Year	Reasons
Benzo(a)pyrene	**Good**	2015	
Benzo(b)fluoranthene	**Good**	2015	
Benzo(g-h-i)perylene	**Good**	2033	Technically infeasible: No known technical solution is available
Benzo(k)fluoranthene	**Good**	2015	
Cadmium and Its Compounds	**Good**	2015	
Di(2-ethylhexyl)phthalate (Priority hazardous)	**Good**	2015	
Dioxins and dioxin-like compounds	**Good**	2015	
Endosulfan	**Good**	2015	
Heptachlor and cis-Heptachlor epoxide	**Good**	2015	
Hexabromocyclododecane (HBCDD)	**Good**	2015	
Hexachlorobenzene	**Good**	2015	
Hexachlorobutadiene	**Good**	2015	
Hexachlorocyclohexane	**Good**	2015	
Mercury and Its Compounds	**Good**	2040	Natural conditions: Chemical status recovery time
Nonylphenol	**Good**	2015	
Pentachlorobenzene	**Good**	2015	
Perfluorooctane sulphonate (PFOS)	**Good**	2015	
Polybrominated diphenyl ethers (PBDE)	**Good**	2063	Natural conditions: Chemical status recovery time
Quinoxyfen	**Good**	2015	
Tributyltin Compounds	**Good**	2021	Disproportionately expensive: Disproportionate burdens
Trifluralin (Priority hazardous)	**Good**	2015	
Priority substances	**Good**	2015	
1,2-dichloroethane	**Good**	2015	
Aclonifen	**Good**	2015	
Alachlor	**Good**	2015	
Atrazine	**Good**	2015	
Benzene	**Good**	2015	
Bifenox	**Good**	2015	
Chlorfenvinphos	**Good**	2015	
Chlorpyrifos	**Good**	2015	
Cybutryne	**Good**	2015	
Dichloromethane	**Good**	2015	
Dichlorvos (Priority)	**Good**	2015	
Diuron	**Good**	2015	
Fluoranthene	**Good**	2015	
Isoproturon	**Good**	2015	
Lead and Its Compounds	**Good**	2015	

Classification Item	Status	Year	Reasons
Octylphenol	**Good**	2015	
Pentachlorophenol	**Good**	2015	
Simazine	**Good**	2015	
Terbutryn	**Good**	2015	
Trichlorobenzenes	**Good**	2015	
Trichloromethane	**Good**	2015	
Other Pollutants	**Good**	2015	
Aldrin, Dieldrin, Endrin & Isodrin	**Good**	2015	
Carbon Tetrachloride	**Good**	2015	
DDT Total	**Good**	2015	
Tetrachloroethylene	**Good**	2015	
Trichloroethylene	**Good**	2015	
para - para DDT	**Good**	2015	

Protected areas

PA Name	Id	Directive	More information
Hamble Estuary Eutrophic NVZ (TraC)	ET3	Nitrates Directive	
Solent Maritime	UK0030059	Special Area of Conservation	Natural England
Approaches to Southampton Water	UKSW36	Shellfish Water Directive	
Solent And Dorset Coast	UK9020330	Special Protection Area	Natural England
Solent & Southampton Water	UK9011061	Special Protection Area	Natural England
Solent & Southampton Water	UK11063	Ramsar Site	Natural England
Stanswood Bay	UKSW37	Shellfish Water Directive	
River Itchen (Hampshire)	UKENRI110	Urban Waste Water Treatment Directive	
River Itchen	UK0012599	Special Area of Conservation	Natural England
Southampton Water	UKSW35	Shellfish Water Directive	
River Hamble	UKENRI122	Urban Waste Water Treatment Directive	
Hamble Estuary	UKENCA123	Urban Waste Water Treatment Directive	

Monitoring sites which have been used to classify this water body

Shows which sites were used for classification for which years within each cycle.

Monitoring Site	Cycle 1	Cycle 2	Cycle 3
D/S ENICHEM/RECHEM T/E G0016869	2013, 2009, 2011, 2012, 2010	2016, 2019, 2015	2019
NATIONAL POWER FAWLEY-DOCK G0003575	2009, 2011, 2012, 2010, 2013	2015, 2016, 2019	2019
D/S ESSO 1+2 G0016872	2009, 2013, 2011, 2012, 2010	2016, 2019, 2015	2019

Monitoring Site	Cycle 1	Cycle 2	Cycle 3
D/S ESSO 3 G0016871	2009, 2011, 2012, 2010, 2013		
D/S SLOWHILL COPSE STW EMZ G0006023	2009, 2013, 2011, 2012, 2010		
D/S BITMAC T/E (EMZ) G0017136	2013, 2010	2016, 2019, 2015	2019
D/S WOOLSTON STW (EMZ) G0017137	2009, 2012, 2013, 2010, 2011		
TEST ESTUARY 2 G0003873	2013	2019, 2016, 2015	2019
D/S ASHLETT CREEK STW (EMZ) G0017134	2009, 2012, 2013, 2010, 2011		
WOOLSTON MUSSEL TISSUE G0003552		2015, 2019, 2016	2019
R HAMBLE BURSLEDON BRIDGE G0003730	2009, 2012, 2010, 2013, 2011		
D/S MILLBROOK STW G0016868	2009, 2011, 2010, 2012, 2013		
PICKFORDS WHARF - SURFACE G0017018	2013	2019, 2016, 2015	2019
SOUTHAMPTON WATER-SFW G0003661	2011, 2013, 2010, 2012	2019, 2016, 2015	2019
BADMAN CREEK SPT G0003728	2013	2019, 2016, 2015	2019
APPROACHES SOTON WATER-SFW G0003677	2009, 2013, 2011, 2010, 2012	2015, 2019	2019
SOUTHAMPTON WATER HOUND BUOY G0003562	2013	2019, 2016, 2015	2019
R ITCHEN COBDEN BRIDGE G0003787	2009, 2011, 2012, 2010, 2013		

Upstream water bodies

- Monks Brook
- Itchen
- Tanner's Brook
- Bartley Water
- Main River Hamble
- Test (Lower)
- Langdown Stream

Downstream water bodies

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The Itchen Navigation Water Body

Good ecological status



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Attributes

Water Body ID	Water Body Type	Hydromorphological designation

NGR	Length	Surveillance Water Body
SU4714022931	7.224 km	No

Classifications

Time period: Cycle 3

Classification Item	2019	2022
Ecological	**Good**	
Supporting elements (Surface Water)	**Good**	
Mitigation Measures Assessment	**Good**	
Chemical	Fail	**Does not require assessment**
Priority hazardous substances	Fail	**Does not require assessment**
Benzo(a)pyrene	**Good**	
Dioxins and dioxin-like compounds	**Good**	
Heptachlor and cis-Heptachlor epoxide	**Good**	
Hexabromocyclododecane (HBCDD)	**Good**	
Hexachlorobenzene	**Good**	
Hexachlorobutadiene	**Good**	
Mercury and Its Compounds	Fail	
Perfluorooctane sulphonate (PFOS)	**Good**	
Polybrominated diphenyl ethers (PBDE)	Fail	
Priority substances	**Good**	**Does not require assessment**
Fluoranthene	**Good**	
Other Pollutants	**Does not require assessment**	**Does not require assessment**

Why do all water bodies have a chemical status of fail?

Investigations into classification status

No data to show

Reasons for not achieving good (RNAG) and reasons for deterioration (RFD)

All reasons (RFDs and RNAGs) attributed to the classification elements in this water body.

Reason Type	SWMI	Activity	Category	Classification Element	More information
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Polybrominated diphenyl ethers (PBDE)	Details
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Mercury and Its Compounds	Details

Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons for deterioration.

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and rural land management	0	0	0	0	0	0	0
Industry	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0
Navigation	0	0	0	0	0	0	0
Urban and transport	0	0	0	0	0	0	0
Water Industry	0	0	0	0	0	0	0
Local & central government	0	0	0	0	0	0	0
Domestic general public	0	0	0	0	0	0	0
Recreation	0	0	0	0	0	0	0
Waste treatment and disposal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
No sector responsible	0	0	0	0	0	0	0
Sector under investigation	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Objectives

Classification Item	Status	Year	Reasons
Ecological	**Good**	2015	
Biological quality elements	**Not assessed**	2015	
Physico-chemical quality elements	**Not assessed**	2015	
Hydromorphological Supporting Elements	**Not assessed**	2015	
Supporting elements (Surface Water)	**Good**	2015	
Mitigation Measures Assessment	**Good**	2015	
Specific pollutants	**Not assessed**	2015	
Chemical	**Good**	2063	Natural conditions: Chemical status recovery time

Classification Item	Status	Year	Reasons
Benzo(a)pyrene	**Good**	2015	
Dioxins and dioxin-like compounds	**Good**	2015	
Heptachlor and cis-Heptachlor epoxide	**Good**	2015	
Hexabromocyclododecane (HBCDD)	**Good**	2015	
Hexachlorobenzene	**Good**	2015	
Hexachlorobutadiene	**Good**	2015	
Mercury and Its Compounds	**Good**	2040	Natural conditions: Chemical status recovery time
Perfluorooctane sulphonate (PFOS)	**Good**	2015	
Polybrominated diphenyl ethers (PBDE)	**Good**	2063	Natural conditions: Chemical status recovery time
Priority substances	**Good**	2015	
Fluoranthene	**Good**	2015	
Other Pollutants	**Does not require assessment**	2015	

Protected areas

PA Name	Id	Directive	More information
Hamble Estuary Eutrophic NVZ (TraC)	ET3	Nitrates Directive	
Hampshire Chalk	G143	Nitrates Directive	

Monitoring sites which have been used to classify this water body

Shows which sites were used for classification for which years within each cycle.

Monitoring Site	Cycle 1	Cycle 2	Cycle 3
110181 110181	2011		
110245 110245	2011		

Upstream water bodies

Downstream water bodies

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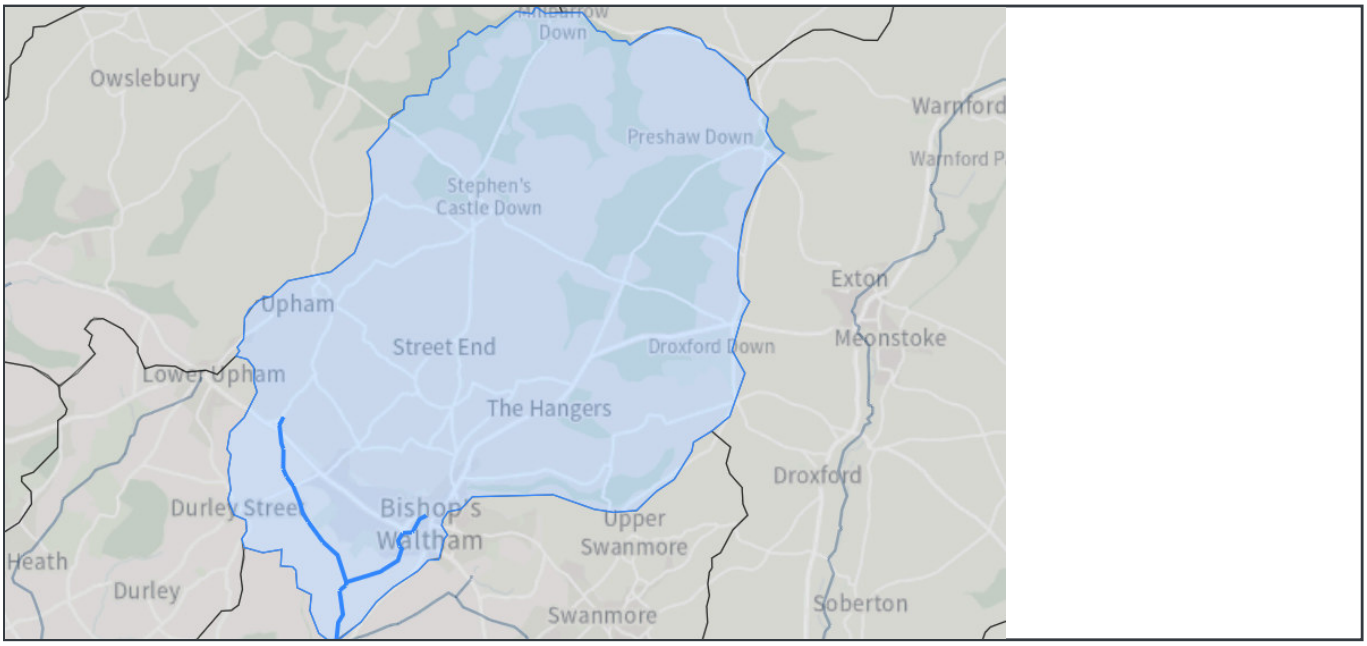
Upper Hamble Water Body

Moderate ecological status



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Attributes

Water Body ID	Water Body Type	Hydromorphological designation

NGR	Catchment area	Length
SU5365017787	3806.23 ha	5.309 km

Catchment area	Surveillance Water Body
38.062 km2	No

Classifications

Time period: Cycle 3

Classification Item	2019	2022
Ecological	**Moderate**	**Moderate**
Biological quality elements	**Moderate**	**Moderate**
Fish	**Moderate**	**Moderate**
Invertebrates	**High**	**Good**
Macrophytes and Phytobenthos Combined	**Good**	**Good**
Phytobenthos Sub Element	**Good**	**Good**
Physico-chemical quality elements		**Moderate**
Ammonia (Phys-Chem)		**High**
Dissolved oxygen		**Poor**
Phosphate		**Moderate**
Temperature		**High**
pH		**High**
Hydromorphological Supporting Elements	**Not high**	**Not high**
Hydrological Regime	**Supports good**	**Supports good**
Morphology	**Not high**	**Not high**
Chemical	Fail	**Does not require assessment**
Priority hazardous substances	Fail	**Does not require assessment**
Benzo(a)pyrene	**Good**	
Dioxins and dioxin-like compounds	**Good**	
Heptachlor and cis-Heptachlor epoxide	**Good**	
Hexabromocyclododecane (HBCDD)	**Good**	
Hexachlorobenzene	**Good**	
Hexachlorobutadiene	**Good**	
Mercury and Its Compounds	Fail	
Perfluorooctane sulphonate (PFOS)	**Good**	
Polybrominated diphenyl ethers (PBDE)	Fail	
Priority substances	**Good**	**Does not require assessment**
Cypermethrin (Priority)	**Good**	
Fluoranthene	**Good**	
Other Pollutants	**Does not require assessment**	**Does not require assessment**

Viewing latest data (Updated on 17 March 2025). Switch to river basin management plan data

Investigations into classification status

Classification Element	Cycle	Year	Status	Outcome
Invertebrates	2	2014	Moderate	Uncertain there is a problem
Fish	2	2015	Moderate	Quite certain there is a problem

Reasons for not achieving good (RNAG) and reasons for deterioration (RFD)

All reasons (RFDs and RNAGs) attributed to the classification elements in this water body.

Reason Type	SWMI	Activity	Category	Classification Element	More information
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Polybrominated diphenyl ethers (PBDE)	Details
RNAG	Flow	Groundwater abstraction	Water Industry	Invertebrates	Details
RNAG	Diffuse source	Riparian/in-river activities (inc bankside erosion)	Agriculture and rural land management	Invertebrates	Details
RNAG	Natural	Drought	No sector responsible	Invertebrates	Details
RNAG	Natural	Drought	No sector responsible	Dissolved oxygen	Details
RNAG	Flow	Groundwater abstraction	Water Industry	Dissolved oxygen	Details
RNAG	Physical modification	Land use - improved grassland	Other	Fish	Details
RNAG	Physical modification	Barriers - ecological discontinuity	Other	Fish	Details
RFD	Natural	Drought	No sector responsible	Invertebrates	Details
RNAG	Diffuse source	Poor Livestock Management	Agriculture and rural land management	Phosphate	Details
RFD	Flow	Groundwater abstraction	Water Industry	Invertebrates	Details
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Mercury and Its Compounds	Details
RNAG	Point source	Farm/site infrastructure	Agriculture and rural land management	Phosphate	Details

Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons for deterioration.

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and	0	0	0	0	0	0	0

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Industry	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0
Navigation	0	0	0	0	0	0	0
Urban and transport	0	0	0	0	0	0	0
Water Industry	0	0	0	1	0	0	0
Local & central government	0	0	0	0	0	0	0
Domestic general public	0	0	0	0	0	0	0
Recreation	0	0	0	0	0	0	0
Waste treatment and disposal	0	0	0	0	0	0	0
Other	2	0	0	0	0	0	0
No sector responsible	0	0	0	0	0	0	0
Sector under investigation	0	0	0	0	0	0	0
Total	2	0	0	1	0	0	0

Objectives

Classification Item	Status	Year	Reasons
Ecological	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Biological quality elements	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Fish	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Invertebrates	**Good**	2021	Disproportionately expensive: Disproportionate burdens
Macrophytes and Phytobenthos Combined	**Good**	2015	
Physico-chemical quality elements	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Ammonia (Phys-Chem)	**Good**	2015	
Dissolved oxygen	**Good**	2015	
Phosphate	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Temperature	**Good**	2015	
pH	**Good**	2015	

Classification Item	Status	Year	Reasons
Hydrological Regime	**Supports good**	2015	
Supporting elements (Surface Water)	**Not assessed**	2015	
Specific pollutants	**Not assessed**	2015	
Chemical	**Good**	2063	Natural conditions: Chemical status recovery time
Priority hazardous substances	**Good**	2063	Natural conditions: Chemical status recovery time
Benzo(a)pyrene	**Good**	2015	
Dioxins and dioxin-like compounds	**Good**	2015	
Heptachlor and cis-Heptachlor epoxide	**Good**	2015	
Hexabromocyclododecane (HBCDD)	**Good**	2015	
Hexachlorobenzene	**Good**	2015	
Hexachlorobutadiene	**Good**	2015	
Mercury and Its Compounds	**Good**	2040	Natural conditions: Chemical status recovery time
Perfluorooctane sulphonate (PFOS)	**Good**	2015	
Polybrominated diphenyl ethers (PBDE)	**Good**	2063	Natural conditions: Chemical status recovery time
Priority substances	**Good**	2015	
Cypermethrin (Priority)	**Good**	2015	
Fluoranthene	**Good**	2015	
Other Pollutants	**Does not require assessment**	2015	

Protected areas

PA Name	Id	Directive	More information
Hamble Estuary Eutrophic NVZ (TraC)	ET3	Nitrates Directive	
Hampshire Chalk	G143	Nitrates Directive	
Upper Hamble NVZ	S810	Nitrates Directive	

Monitoring sites which have been used to classify this water body

Shows which sites were used for classification for which years within each cycle.

Monitoring Site	Cycle 1	Cycle 2	Cycle 3
R HAMBLE U/S CONFLUENCE MOORS STREAM G0006008	2013, 2014	2013, 2015, 2014, 2016	
43296 43296	2013, 2014	2015, 2013, 2016, 2019, 2014	2019, 2022
[illegible]	2011, 2014, 2012, 2010, 2013		

Monitoring Site	Cycle 1	Cycle 2	Cycle 3
EAST HAMPSHIRE/HAMBLE/TANGIER FARM/ 30223	2013, 2011, 2014, 2012, 2010, 2009	2015, 2016, 2019	2019, 2022
EAST HAMPSHIRE/HAMBLE/BROOKLANDS FARM/ 30222		2015, 2016, 2019	2019, 2022
EAST HAMPSHIRE/HAMBLE/THICKETS FARM/ 30221		2019	2019, 2022
D/S OF BROOKLANDS FARM HOUSE FORD G0006838			2022

Upstream water bodies

Downstream water bodies

Main River Hamble

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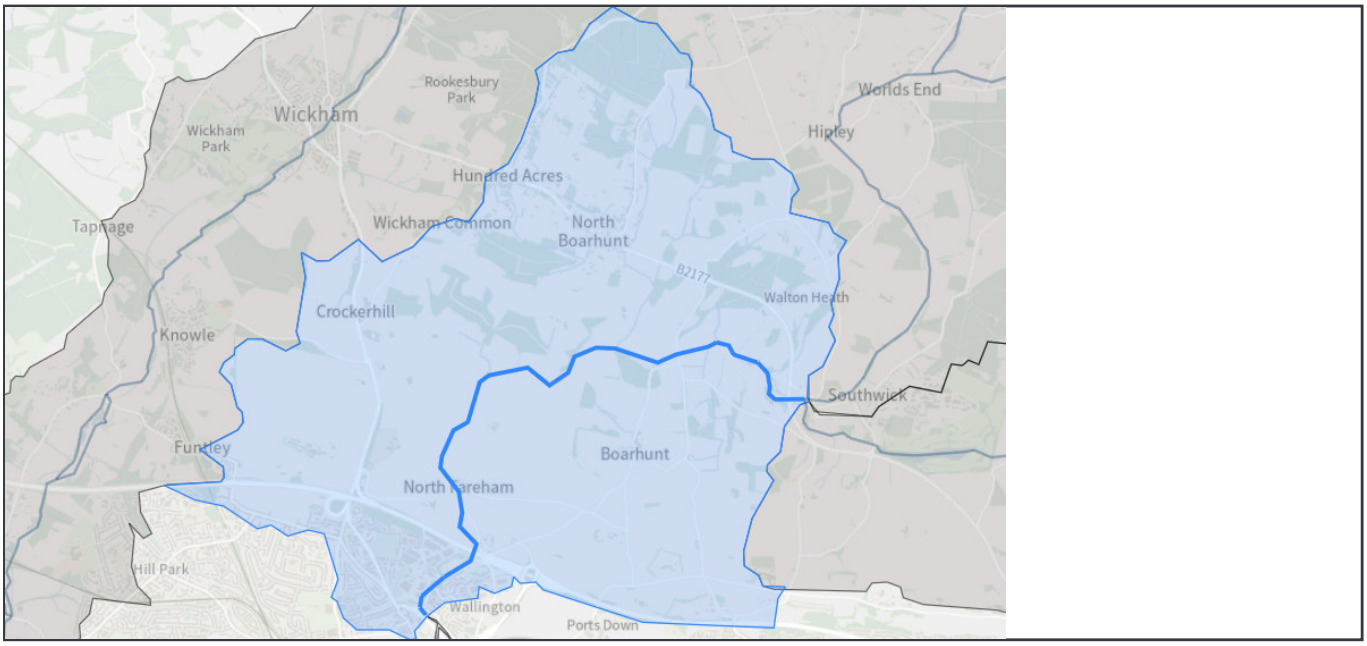
Wallington below Southwick Water Body

Moderate ecological status



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Attributes

Water Body ID	Water Body Type	Hydromorphological designation

NGR	Catchment area	Surveillance Water Body
SU5925809064	22.724 km2	No
Length	**Catchment area**	
7.138 km	2272.414 ha	

Classifications

Time period: Cycle 3

Classification Item	2019	2022
Ecological	**Moderate**	**Moderate**
Biological quality elements	**Good**	**Good**
Fish	**Good**	**Good**
Physico-chemical quality elements	**Moderate**	**Moderate**
Acid Neutralising Capacity	**High**	**High**
Ammonia (Phys-Chem)	**High**	**High**
Dissolved oxygen	**Moderate**	**Moderate**
Phosphate	**Moderate**	**Good**
Temperature	**High**	**High**
pH	**High**	**High**
Hydromorphological Supporting Elements	**Not high**	**Not high**
Hydrological Regime	**Does not support good**	**Does not support good**
Morphology	**Not high**	**Not high**
Specific pollutants	**High**	**High**
Copper	**High**	**High**
Triclosan	**High**	**High**
Zinc	**High**	**High**
Chemical	Fail	**Does not require assessment**
Priority hazardous substances	Fail	**Does not require assessment**
Benzo(a)pyrene	**Good**	
Benzo(b)fluoranthene	**Good**	
Benzo(g-h-i)perylene	**Good**	
Benzo(k)fluoranthene	**Good**	
Cadmium and Its Compounds	**Good**	
Di(2-ethylhexyl)phthalate (Priority hazardous)	**Good**	
Dioxins and dioxin-like compounds	**Good**	
Heptachlor and cis-Heptachlor epoxide	**Good**	
Hexabromocyclododecane (HBCDD)	**Good**	
Hexachlorobenzene	**Good**	
Hexachlorobutadiene	**Good**	
[illegible]	[illegible]	

Classification Item	2019	2022
Perfluorooctane sulphonate (PFOS)	Fail	
Polybrominated diphenyl ethers (PBDE)	Fail	
Priority substances	**Good**	**Does not require assessment**
Cypermethrin (Priority)	**Good**	
Dichloromethane	**Good**	
Fluoranthene	**Good**	
Lead and Its Compounds	**Good**	
Nickel and Its Compounds	**Good**	
Other Pollutants	**Good**	**Does not require assessment**
Tetrachloroethylene	**Good**	
Trichloroethylene	**Good**	

Why do all water bodies have a chemical status of fail?

Investigations into classification status

Classification Element	Cycle	Year	Status	Outcome
Nonylphenol	2	2013	Fail	Uncertain there is a problem
Triclosan	2	2013	Moderate	Uncertain there is a problem
Macrophytes and Phytobenthos Combined	2	2013	Moderate	Quite certain there is a problem
Fish	2	2015	Moderate	Quite certain there is a problem
Cadmium and Its Compounds	2	2013	Fail	Uncertain there is a problem
Di(2-ethylhexyl)phthalate (Priority hazardous)	2	2013	Fail	Uncertain there is a problem

Reasons for not achieving good (RNAG) and reasons for deterioration (RFD)

All reasons (RFDs and RNAGs) attributed to the classification elements in this water body.

Reason Type	SWMI	Activity	Category	Classification Element	More information
RFD	Monitoring Site Changed (RFD only)	Not applicable	No sector responsible	Dissolved oxygen	Details
RNAG	Flow	No further action (Flow is below the EFI but NOT causing an ecological failure)	No sector responsible	Hydrological Regime	Details
RNAG	Flow	Groundwater abstraction	Water Industry	Hydrological Regime	Details
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Mercury and Its Compounds	Details
RNAG	Unknown (pending investigation)	Unknown (pending investigation)	Sector under investigation	Perfluorooctane sulphonate (PFOS)	Details
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Polybrominated diphenyl ethers (PBDE)	Details

Reason Type	SWMI	Activity	Category	Classification Element	More information
RNAG	Point source	Sewage discharge (continuous)	Water Industry	Phosphate	Details
RNAG	Diffuse source	Poor soil management	Agriculture and rural land management	Phosphate	Details

Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons for deterioration.

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and rural land management	0	0	0	0	0	0	0
Industry	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0
Navigation	0	0	0	0	0	0	0
Urban and transport	0	0	0	0	0	0	0
Water Industry	0	0	0	1	0	0	0
Local & central government	0	0	0	0	0	0	0
Domestic general public	0	0	0	0	0	0	0
Recreation	0	0	0	0	0	0	0
Waste treatment and disposal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
No sector responsible	0	0	0	0	0	0	0
Sector under investigation	0	0	0	0	0	0	0
Total	0	0	0	1	0	0	0

Objectives

Classification Item	Status	Year	Reasons
Ecological	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Biological quality elements	**Good**	2021	Disproportionately expensive: Disproportionate

Classification Item	Status	Year	Reasons
Fish	**Good**	2021	Disproportionately expensive: Disproportionate burdens
Macrophytes and Phytobenthos Combined	**Good**	2015	
Physico-chemical quality elements	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Acid Neutralising Capacity	**Good**	2015	
Ammonia (Phys-Chem)	**Good**	2015	
Dissolved oxygen	**Good**	2015	
Phosphate	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Temperature	**Good**	2015	
pH	**Good**	2015	
Hydromorphological Supporting Elements	**Not high**	2015	
Hydrological Regime	**Does not support good**	2015	Disproportionately expensive: Unfavourable balance of costs and benefits
Supporting elements (Surface Water)	**Not assessed**	2015	
Specific pollutants	**High**	2015	
Copper	**High**	2015	
Triclosan	**High**	2015	
Zinc	**High**	2015	
Chemical	**Good**	2063	Natural conditions: Chemical status recovery time; Technically infeasible: No known technical solution is available
Priority hazardous substances	**Good**	2063	Natural conditions: Chemical status recovery time; Technically infeasible: No known technical solution is available
Benzo(a)pyrene	**Good**	2015	
Benzo(b)fluoranthene	**Good**	2015	
Benzo(g-h-i)perylene	**Good**	2015	
Benzo(k)fluoranthene	**Good**	2015	
Cadmium and Its Compounds	**Good**	2015	
Di(2-ethylhexyl)phthalate (Priority hazardous)	**Good**	2015	
Dioxins and dioxin-like compounds	**Good**	2015	
Heptachlor and cis-Heptachlor epoxide	**Good**	2015	
Hexabromocyclododecane (HBCDD)	**Good**	2015	
Hexachlorobenzene	**Good**	2015	
Hexachlorobutadiene	**Good**	2015	
Mercury and Its Compounds	**Good**	2040	Natural conditions: Chemical status recovery time
Nonylphenol	**Good**	2015	

Classification Item	Status	Year	Reasons
Polybrominated diphenyl ethers (PBDE)	**Good**	2063	Natural conditions: Chemical status recovery time
Priority substances	**Good**	2015	
Cypermethrin (Priority)	**Good**	2015	
Dichloromethane	**Good**	2015	
Fluoranthene	**Good**	2015	
Lead and Its Compounds	**Good**	2015	
Nickel and Its Compounds	**Good**	2015	
Other Pollutants	**Good**	2015	
Tetrachloroethylene	**Good**	2015	
Trichloroethylene	**Good**	2015	

Protected areas

PA Name	Id	Directive	More information
Fareham	G58	Nitrates Directive	
Chichester,Langstone and Portsmouth Harbours Eutrophic NVZ (TraC)	ET2	Nitrates Directive	
Solent And Dorset Coast	UK9020330	Special Protection Area	Natural England
Portsmouth Harbour	UKSW34	Shellfish Water Directive	

Monitoring sites which have been used to classify this water body

Shows which sites were used for classification for which years within each cycle.

Monitoring Site	Cycle 1	Cycle 2	Cycle 3
WINE CROSS TRIB U/S CONF G0006097		2019	2019
EAST HAMPSHIRE/WALLINGTON/SPURLING'S FARM/ 26499	2010, 2009, 2013, 2011, 2012		
148263 148263	2011, 2010		
82059 82059	2011, 2010		
BLACKHOUSE LN D/S BRIDGE G0006095		2019	2019
EAST HAMPSHIRE/WALLINGTON/UPSTREAM OF BOARHUNT BRIDGE/ 26477	2010, 2009, 2013, 2011, 2014, 2012	2019, 2015, 2016	2019, 2022
PRIORS HOLD FARM, WALLINGTON G0006098		2019	2019
R WALLINGTON RIVERSDALE G0003647	2010, 2009, 2013, 2011, 2014, 2012	2015, 2016, 2019, 2013, 2014	2019, 2022
EAST HAMPSHIRE/WALLINGTON/SOUTHWICK BYPASS/ 26437	2010, 2009, 2013, 2011, 2012		

Monitoring Site	Cycle 1	Cycle 2	Cycle 3
42017 42017	2012, 2009, 2013, 2011, 2010	2013	
EAST HAMPSHIRE/WALLINGTON/WHITEDELL FARM/ 4258	2010, 2009, 2013, 2011, 2014, 2012	2019, 2015, 2016	2019, 2022
SUN CLUB TRIB U/S STW G0006096		2019	2019

Upstream water bodies

Upper Wallington

Potwell Trib

Downstream water bodies

PORTSMOUTH HARBOUR

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