

Havant Thicket Reservoir Project

Environmental Statement Volume 4 – Appendices

Appendix A2 Description of the Development

A2.1 Outline Environmental Management Plan (OEMP)

Portsmouth Water Ltd.

08/09/20

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Notice

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1. Introduction and background to the scheme

Purpose of the report

- 1.1. The purpose of the Outline Environmental Management Plan (OEMP) is to manage the environmental effects of the Scheme as identified within the Environmental Statement (ES), and to demonstrate compliance with relevant environmental legislation.
- 1.2. The OEMP includes a Record of Environmental Actions and Commitments (REAC) in Section 3 that identifies environmental actions and commitments made during the outline design to mitigate the potential environmental effects of the Scheme. The REAC includes the mitigation and compensation, management and monitoring measures that informed the environmental impact assessment reported in the ES. These measures will be implemented during the construction and operation of the reservoir site and access routes, and pipeline.
- 1.3. It would not be practical or achievable to produce a fully detailed Construction Environmental Management Plan (CEMP) at this stage. The aim of the document, therefore, is to provide a framework that can be followed to inform the detailed design and the development of a detailed CEMP.
- 1.4. The overall objectives of the OEMP are as follows:
 - To minimise the risk of any type of pollution incident or other form of unauthorised discharge.
 - To avoid or minimise impact to nearby receptors.
 - To be compliant with statutory legislation and contract specifications.
 - To provide a framework for the future implementation and review of the CEMP and other relevant documents.
- 1.5. A full Construction Environment Management Plan (referred to as the CEMP) will be prepared by Principal Contractor (PC) once appointed on the reservoir site and access routes, and pipeline contracts.
- 1.6. The CEMP will be a 'live' document and will be maintained by the PC throughout the life of the Scheme.
- 1.7. It is expected that the appointed contractor will include the following appendices within the CEMP, although this list is indicative and not exhaustive:
 - Location plan;
 - Constraints plan;
 - Construction programme;
 - Toolbox talks and Method statements; and,
 - Key legislation and policy strategies.
- 1.8. The above appendices can also be "live" documents which will be maintained and updated throughout the life of the Scheme.
- 1.9. The PC will develop the CEMP into a Handover Environmental Management Plan (HEMP) during the construction works to pass crucial environmental information to those bodies responsible for future maintenance and operation of the asset.

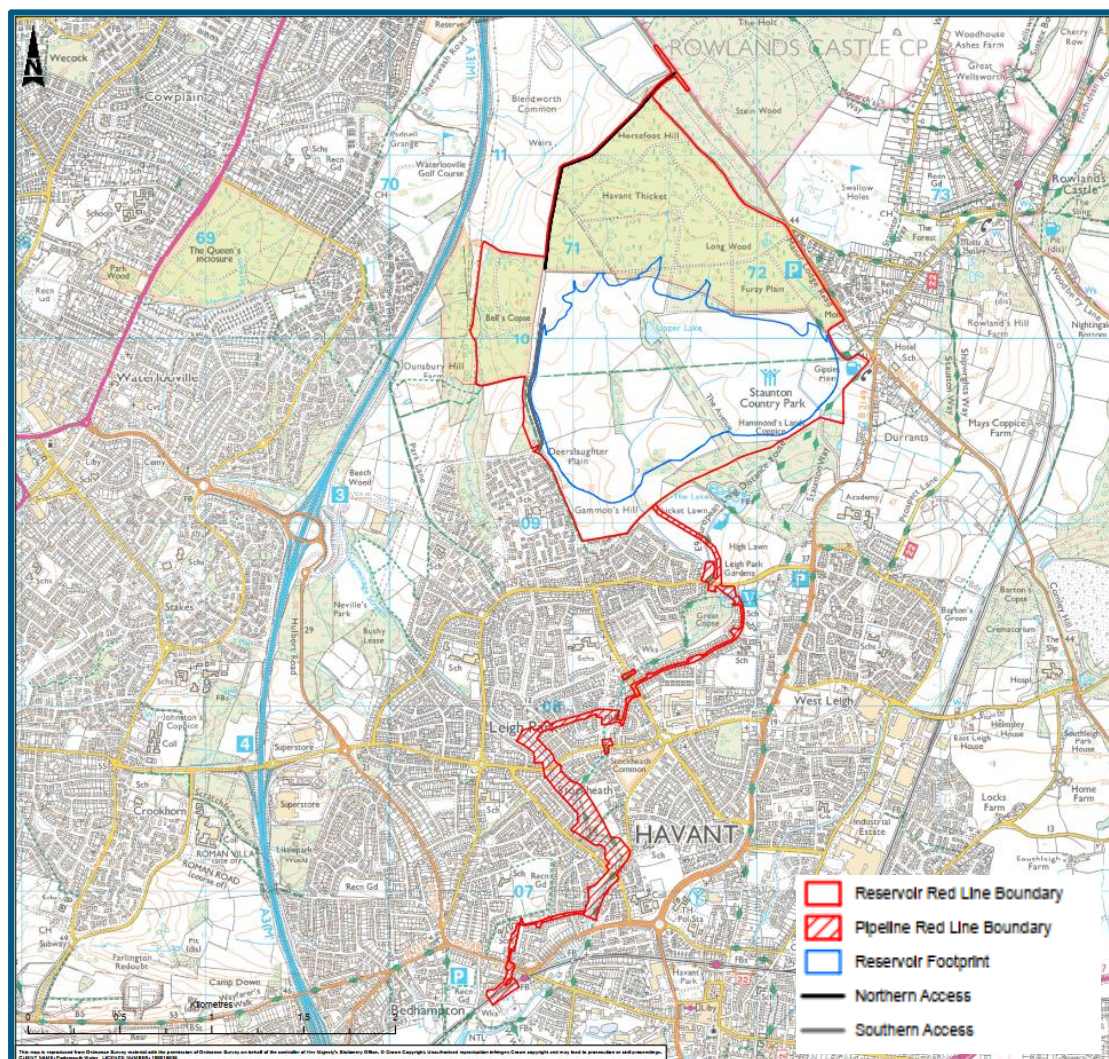
Scheme overview

- 1.10. The reservoir, when constructed, will be filled with surplus water drawn from the springs at the Portsmouth Water pumping station at Bedhampton works when flows are at their highest in winter via a new combined inlet/outline pipeline, and will provide water supplies to Portsmouth Water customers in the summer months as required. The increase in water supplies available to Portsmouth Water on completion of the Scheme will enable additional water to be supplied to Southern Water. Southern Water has a forecast deficit in water resources in the Hampshire area which has been created by the reduction of its abstraction licences on the River Itchen imposed by the Environment Agency. Southern Water has an agreement under Section 20 of the Water

Resources Act 1991 that requires them to use all best endeavours to remove this forecast deficit. Additional water made available by the Scheme will form at least 14% of the resources required to meet the forecast deficit.

- 1.11. Complementary to its infrastructure resilience function, the reservoir will provide a new recreational facility/resource adjacent to one of the more deprived areas in south east Hampshire, in an area which the community can access on foot, by bike, or through existing bus routes. It offers further opportunities to improve the wider footpath, cycleway and bridleway networks in the area. More than 29,500 people live within reasonable walking distance of the site (1.5 km) and 120,000 people live within reasonable cycling distance of the site (4.5 km).
- 1.12. The Scheme will provide a new wetland habitat and associated area for nature conservation. The proximity of the reservoir to the internationally important Chichester and Langstone Harbour means that it can be used as a safe retreat for roosting birds when there is disturbance in the Harbour (Special Protection Area (SPA) and Special Area of Conservation (SAC)).
- 1.13. The proposed pipeline will also be used as an emergency draw down pipeline if the reservoir needs to be drained down in emergency conditions.
- 1.14. As indicated on Figure 1.1. Scheme Setting Plan, which is included in Appendix A of this OEMP, the reservoir site lies within two local planning authorities, Havant Borough Council and East Hampshire District Council, within the county of Hampshire. The pipeline route is entirely within the Havant Borough Council.
- 1.15. The Environmental Constraints Plan and Outline Masterplan are included in Appendix A of this OEMP.

Figure 1-1 – Site Location Plan



Key components of the Scheme

- 1.16. The key components of the Scheme are as follows:
- A reservoir for raw water storage and access routes, with control house, visitor centre and car park, recreational facilities for public amenity and a wetland along the northern shore of the reservoir;
 - A pipeline corridor which involves the transfer of water from Bedhampton Springs to fill the reservoir in the winter and draw it off to treat and supply when needed in the summer.

Environment context

The reservoir site

- 1.17. The site lies within a shallow valley located between the residential settlements of Leigh Park and Rowlands Castle. It has an area of approximately 160 ha and comprises predominantly open grassland with some woodland, vegetation and ditches.
- 1.18. Within the reservoir site, The Avenue, Middle Clearing and Round Wood are classified as Ancient Semi-Natural Woodland (ASNW). The Corsican Pine Plantation is classified as Plantation on Ancient Woodland Sites (PAWS). A significant part of Havant Thicket woodland to the north is listed as PAWS. Bells Copse, located to the west, also located within the wider reservoir site is also listed as partly ASNW and partly PAWS. These woodland blocks are also designated as Sites of Importance for Nature Conservation (SINC) and contains habitats for birds, insects, bats and dormice. A Public Right of Way (bridleway) extends across from east to west.
- 1.19. Thirteen species of bats were recorded within the reservoir site including Bechstein's bat. The reservoir site also supports a population of hazel dormouse, a range of priority bird species, reptiles and a small population of great crested newt is likely to be present within ponds in Havant Thicket woodland in the north, outside the reservoir site footprint. Badgers are known to forage within the reservoir site, but there are no active setts.
- 1.20. Three unnamed small watercourses run from north to south across the reservoir site, these converge into one stream to the west of the Avenue before flowing off site into the Riders Lane Stream. None of the watercourses within the reservoir site are designated main rivers by the Environment Agency at that point.
- 1.21. The residential areas of Warren Park and Leigh Park lie to the west and south-west of the reservoir site. The settlements of Rowlands Castle and Stansted are around 200 m east.
- 1.22. The woodland directly to the north at Havant Thicket and to the west of the reservoir site at Bells Copse is owned and managed by Forestry England (FE) for timber production, and is also classified as ancient / ancient replanted woodland.
- 1.23. Directly to the west of the reservoir site are open areas of grassland and a further area of ancient woodland known as Cabbagefield Row.
- 1.24. Land to the south and south-west of the reservoir site comprises the residential areas of Warren Park and Leigh Park, the nearest of which are present on Swanmore Road approximately 20m from the reservoir site.
- 1.25. Part of the reservoir site is classed as a designated Country Park, namely Staunton Country Park. The area of Staunton Country Park within the reservoir site is mainly open grasslands. It has three walking trails including: Easy Access, 2.6 km, Medium Walking Trail, 2.2 km and Long Walking Trail, 5.1 km. There are also two cycling trails: Havant Thicket Boundary Trail and Green Mountain Bike Trail.
- 1.26. The majority of the reservoir site is located in a low probability flood risk area, Flood Zone 1. One section of the Site (south-west corner), is categorised as being in Flood Zone 2 and 3. Flood Zone 3 is the area of highest risk of flooding, defined as 'Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding.'
- 1.27. The historic environment within the reservoir site includes portions of the Grade II* Leigh Park (Staunton Country Park) Registered Park and Garden (RPG) at and the Sir George Staunton Conservation Area. In addition, 42 designated heritage assets have been identified within 2 km of

the reservoir site. These include three Scheduled Monuments, two additional Grade II* Registered Parks and Gardens, one Grade II* listed building, and 36 Grade II listed buildings. The pipeline corridor terminates near the Old Bedhampton Conservation Area. The Scheme would remove a portion of the Grade II* Leigh Park (Staunton Country Park) RPG, specifically a designed "ride" called the Avenue, which was cut from existing woodland during the late 19th century. This land is also included in the Sir George Staunton Conservation Area. An additional portion of the Conservation Area (outside of the boundary of the RPG) would also be removed to allow for the construction of the reservoir embankment.

The pipeline corridor

- 1.28. The pipeline corridor extends from the Portsmouth Water pumping station at the Bedhampton works, northwards to the proposed control house within the reservoir site.
- 1.29. The southernmost point of the pipeline corridor is located approximately 1 km north of three European / internationally designated sites: Chichester and Langstone Harbours (Special Protection Area) SPA and Ramsar site and Solent Maritime Special Area for Conservation (SAC).
- 1.30. Most of the corridor passes through the Leigh Park Estate and passes along and crosses local roads, areas of hardstanding and amenity grassland of low ecological value and typical of an urban setting.
- 1.31. The pipeline corridor runs north along the Hermitage Stream before turning north-east and broadly following the Riders Lane Stream towards the reservoir site. Large areas of public open space are provided along the sides of Hermitage Stream and Riders Lane Stream, with mature vegetation consisting of trees and scrub that align the stream sides and edges to the residential areas. Recreational opportunities are provided within the open grass areas, which feature public footpaths with associated benches, play areas and informal sports facilities. Some small areas of woodland can be found within the residential areas, the most notable being The Great Copse, an ancient woodland located adjacent the northern end of the pipeline corridor.
- 1.32. At the northern end of the corridor, before entering the reservoir site, the pipeline intersects the Sir George Staunton Conservation Area, and Leigh Park RPG and species rich grassland within Staunton Country Park, designated Thicket Lawn Site of Importance for Nature Conservation (SINC) and High Lawn SINC.
- 1.33. Areas close to Hermitage Stream and that cross Riders Lane Stream are high probability flood risk, Flood Zone 3.

Portsmouth Water's Project Drivers

- 1.34. Portsmouth Water's Project Drivers below provide the high-level framework which is guiding the project. These drivers have informed the Design Principles which were developed to inform the reservoir design. Other drivers influencing the scheme design include the planning policy framework, which sets out the criteria against which the planning applications will be determined, and the planning application strategy, which identifies the level of detail required to inform the planning applications.
 - **Quality:** Quality in procurement, design and delivery to deliver an exemplar project to serve Customers in the short, medium and long term.
 - **Timeliness:** In service and operating by 2029 to support a major bulk transfer to Southern Water. Deliver efficiency in procurement.
 - **Innovation:** Develop best practice in the largest new reservoir project in the South East for decades. Capture learning from companies working in partnership deliver better value for customers.
 - **Flexibility:** Create a project that offers multiple uses and enables the Company to be a strategic water supplier for the South over the medium and long term.
 - **Responsibility:** Realise and build upon our health, safety and well-being goals.
 - **Connectivity:** Positive connection for all stakeholders – Customers, the local community, regulators, staff, contractors, shareholders, commercial partners, environment groups and individuals with a passion for the environment.
 - **Environment:** A positive contribution to local and internationally important habitats. Direct support for Government's objective to reduce the damaging abstraction of water from rivers.

Design Principles

1.35.

The following high-level environmental design principles are embedded into the design of the Scheme and will also provide a framework to guide the preparation of planning applications to discharge reserved matters and planning conditions:

- Create a safe environment to work and play. Use creative and intelligent design to minimise any short and long-term health and safety issues.
- Maintain and integrate with the rural landscape character and woodland setting, through the design layout and material selection process, and where possible developing soft engineering solutions - limiting structures and ancillary clutter.
- Design to be sympathetic to and blend in with the historic park and gardens landscape. Specifically considering impact on setting and views to and from the designated sites including the Grade II listed park and gardens, conservation area and South Downs National Park.
- Design to minimise whole life costs such as maintenance and need for replacement ensuring durability in a challenging public setting and flexibility in the design to manage future requirements.
- Maintain and enhance public access to the site, optimise opportunities to link to existing walking, cycling and bridleway routes.
- Design of the site and all facilities for all ages and abilities.
- Incorporate recreational facilities that are in keeping with the quiet enjoyment of the countryside setting, optimising health and wellbeing opportunities.
- Optimise educational opportunities in all design elements.
- Maximise opportunities for biodiversity in the design of the landscape and buildings and minimise and mitigate any conflict with wildlife through forward planning.
- Where possible avoid ancient woodland, an irreplaceable habitat, and maintain a minimum 15m gap as buffer along the boundary (apart from at boundary with Staunton Country Park).
- Incorporate public art into the design in an innovative and robust way.
- Incorporate interpretation of the wider historic landscape and connections to the Grade II* RPG at Leigh Park and Sir George Staunton Conservation Area.
- Optimise opportunities for a sustainable design where practical to include:
 - Improving energy efficiency in base design, consider decentralised low carbon energy sources to achieve an overall improvement in operational energy efficiency.
 - Improving climate resilience of the reservoir, ensuring management of reservoir flows, considering whole life sustainability impacts.
 - Minimising material quantities as much as possible and select alternative low carbon materials in design wherever possible.
- Support the UK's Net Zero Carbon target by minimising where practical greenhouse gas emissions at all stages of the infrastructure lifecycle, and maximising opportunities for greenhouse gas removals through sequestration by vegetation and renewable energy generation.
- Design infrastructure which is resilient to expected climate change and extreme weather events.

2. Project team roles and responsibilities

Roles and organisations involved in the delivery of the environmental management plan

- 2.1. Portsmouth Water or the Project Management Consultant appointed by Portsmouth Water will be responsible for overseeing management of the project.
- 2.2. Some of the site supervision roles such as the Engineering Clerk of Works and procurement specialist consultants to supervise, monitor or check the PC's Method Statements including sensitive activities will be delegated where required by Portsmouth Water.
- 2.3. A Principal Contractor (PC) is the contractor with control over the construction phase of a project involving more than one contractor. They are appointed in writing by the client to plan, manage, monitor and coordinate health and safety during this phase. The PC will be required to delegate responsibilities to experienced onsite personnel within the key areas of the site. The delegation of responsibilities will be clearly identified within relevant project documents and site files.
- 2.4. The key project roles will be identified and defined in the CEMP prior to the commencement of construction.

Environmental management responsibilities

- 2.5. A full Construction Environment Management Plan (referred to as the CEMP) will be prepared by the Principal Contractor (PC) once appointed on the reservoir site and access routes, and pipeline contracts, and the design and construction plans are finalised.
- 2.6. The CEMP will be a 'live' document and will be maintained by the PC throughout the life of the Scheme.
- 2.7. The CEMP will be developed into the Handover Environmental Management Plan (HEMP) upon completion of the construction works to pass crucial environmental information to those bodies responsible for future maintenance and operation of the asset. The PC will be responsible for preparing the HEMP and Construction Phase Health and Safety Plan on completion of construction, for handover to the managing agent.
- 2.8. Portsmouth Water and/or its delegated Project Management Consultants, PC and subcontractors are all responsible for adhering to and complying with the Scheme objectives, Scheme environmental policy, relevant environmental legislation, bylaws and regulations. It is a requirement that all site personnel will be made aware of their duty of care to the environment, including local communities, and will be provided with adequate training, supervision or instruction in the form of tool box talks, site induction modules and specific method statements as necessary.
- 2.9. Responsibilities for site environmental management will be delegated to key personnel by the PC. These personnel will be responsible for implementation, reporting and monitoring of environmental mitigation during the contract period. Where required, environmental specialists will be consulted to provide advice on specific issues or site activities, in consultation with the PC.
- 2.10. The key environmental management roles and responsibilities will be identified and defined in the CEMP prior to the commencement of construction.

3. Records of environmental actions and commitments

Purpose

- 3.1.
- The Record of Environmental Actions and Commitments (REAC) identifies environmental actions and commitments made during the outline design to mitigate the potential environmental effects of the Scheme.
- 3.2.
- The REAC will be updated as the project progresses and become the CEMP. It will be finalised at the end of construction on completion of the Scheme, when it will be advanced into a Handover Management Plan (HEMP). This is the main vehicle for passing essential environmental information to Portsmouth Water and crucially to the bodies responsible for the future ongoing maintenance and operation of the Scheme.
- 3.3.
- The REAC has been divided into two table to correspond with the separate planning applications for the reservoir site and access routes (Table 3-1), and the pipeline corridor (Table 3-2).

Reservoir site and access routes

Table 3-1 - Record of Environmental Actions and Commitments (REAC): Reservoir Site

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
Air Quality							
AQ1	Ch 7	To limit and control emissions to air during construction to avoid direct and indirect impacts on community and ecological receptors.	Works will be carried out in accordance with the Best Practicable Means, as described in Section 79 (9) of the Environmental Protection Act (EPA) 1990, to reduce fumes or emissions which may impact upon air quality. Selected mitigation measures given in the IAQM Construction Dust Guidance which are applicable to high risk construction sites are described below. With appropriate mitigation measures in place, any adverse effects resulting from the construction works would be minimised such that there would not be any significant residual effect on receptors. The Principal Contractor will undertake mitigation measures to address construction dust from the site, taking into account the direct and indirect impacts of site preparation and construction works on residential and business uses, and ecological receptors. Mitigation measures, which are considered to be particularly appropriate near the properties to the south west and east of the reservoir site are identified below and include site management; monitoring; preparing and maintaining the Site: operations; and waste management; measures specific to demolition; measures specific to earthworks; measures specific to construction; measures specific to Trackout. Site management: - Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken; - Make the complaints log available to the local authority when asked; - Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the log book; - Hold regular liaison meetings with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/ deliveries which might be using the same strategic road network routes.	Community and ecological receptors sensitive to dust	Daily Site Audits by a representative from the Principal Contractor	P, C	Initial: Date:

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
			Monitoring: - Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of site boundary, with cleaning to be provided if necessary; - Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked - Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions; - Agree dust deposition, dust flux, or real-time PM10 continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it is a large site, before work on a phase commences. Preparing and maintaining the Site: - Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible; - Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site; - Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period; - Avoid site runoff of water or mud; - Keep site fencing, barriers and scaffolding clean using wet methods;• Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below; - Cover, seed or fence stockpiles to prevent wind whipping. - Operating Vehicle/Machinery and Sustainable Travel: - Ensure all vehicles switch off engines when stationary - no idling vehicles - Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable; - Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the				

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
			approval of the nominated undertaker and with the agreement of the local authority, where appropriate); - Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials; - Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing). Operations: - Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems; - Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate; - Use enclosed chutes and conveyors and covered skips; - Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate; - Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods. Waste management: - Avoid bonfires and burning of waste materials; Measures specific to demolition: - Ensure effective water suppression is used during demolition operations; - Avoid explosive blasting, using appropriate manual or mechanical alternatives; - Bag and remove any biological debris or damp down such material before demolition. Measures specific to earthworks: - Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable; - Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable; - Only remove the cover in small areas during work and not all at once.				

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
			Measures Specific to Construction: - Avoid scabbling (roughening of concrete surfaces) if possible; - Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place; - Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery. Measures Specific to Trackout: - Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use. - Avoid dry sweeping of large areas; - Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport; - Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable; - Record all inspections of haul routes and any subsequent action in a site log book; - Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned; - Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable); - Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits; - Access gates to be located at least 10 m from receptors where possible.				
Historic Environment							
HE1	Ch 8	To identify, evaluate, and record impacts to archaeological remains	Development of an Archaeological Management Plan	The Archaeological Management Plan will include: The potential for prehistoric archaeological remains	Production and archiving of report on the findings of works done under the Archaeological Management Plan, including approval	P, C	Initial: Date:

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
				within the boundaries of the Reservoir site, including access routes; - Recording of features associated with known archaeological remains within the Reservoir site (and confirmation of past removal if necessary); - The potential for remains associated with William Stone's development of Upper Lake and the Avenue; and - The identification and interpretation of remains associated with the value of the Leigh Park RPG and the Sir George Staunton Conservation Area where they may add to the value of these assets.	from the LPA Archaeologist.		
HE2	Ch8	To ensure the conservation of the Sir George Staunton Conservation Area	Continued consultation with the EHDC / HBC Heritage Manager on designs of the reservoir Control House and to ensure they are in keeping with the aesthetic and historic character of the conservation area.	All designs for new structures within the conservation area will be in keeping with the character of the conservation area and follow the guidance identified in its published management plan.	Concurrence with the LPA Conservation Officer on the appropriateness of design.	P	Initial: Date:
HE3	CH8	To limit impacts to as-yet unknown archaeological remains from the construction and use of the access roads	Use of materials designed to limit soil disturbance, such as GeoTrax or CellWeb.	Will be undertaken as part of the Arboricultural Method Statement.		C	Initial: Date:
HE4	CH8	To offset moderate adverse effect on the Grade II* Leigh Park Registered Park and Garden and Sir George	Measures taken during detailed design to explore options for enhancement and interpretation of the historic environment as part of public realm amenities. Such designs should be developed in consultation with Historic England and the EHDC / HBC Heritage Manager, as well as the Hampshire County Archaeologist, where appropriate. These measures should consider a mechanism to interpret the role of the Avenue in the	Detailed design will continue to engage with Historic England and EHDC / HBC on ways to include interpretation and	Agreement from Historic England and EHDC on the final designs.	P	Initial: Date:

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
		Staunton Conservation Area caused by the removal of a portion of the Avenue.	understanding of value of the Leigh Park RPG and Sir George Staunton Conservation Area in order to offset the harm caused by its partial removal.	enhancement of the historic environment in the design of the visitor's centre and public realm features.			
Biodiversity							
B1	CH9	To set out mitigation and compensation for the reservoir site.	Develop a detailed Biodiversity Mitigation and Compensation Strategy, to include strategy, responsibility and timing of actions to deliver onsite mitigation and compensation measures and additional offsite compensation measures for the reservoir site.	Stakeholder comments will be obtained from LPA, Natural England, Environment Agency and Forestry England.	Agreement of detailed Biodiversity Mitigation and Compensation Strategy by LPA. Quarterly progress ECoW reports to be provided to LPA during construction.	P, C	Initial: Date:
B2	CH9	To set out long term management for habitat creation and enhancement areas at the reservoir site.	Develop a detailed long term ecological management plan (EcMP) for the reservoir site, including management measures, monitoring and plan review requirements.	Stakeholder comments will be obtained from LPA, Natural England, Environment Agency and Forestry England.	Agreement of EcMP by LPA prior to end of construction. Monitoring reports to be provided to LPA during first five years of operation.	C, O	Initial: Date:
B3	CH9	To assist appointed construction contractor in meeting biodiversity requirements	Ecological Clerk of Works (ECoW) to be appointed, to be full time on site during site preparation and clearance and during any works in sensitive areas, and to undertake regular monitoring visits throughout construction programme.	ECoW to be appointed by contractor will be suitably qualified and experienced ecologist.	Quarterly ECoW progress reports to be provided to the LPA	C	Initial: Date:
B4	CH9	To minimise disturbance of sensitive retained habitats and species	Project design and ecological management plan will include measures to control and direct visitor access to minimise disturbance in sensitive areas.		Detailed design and EcMP to be agreed by LPA.	P	Initial: Date:
B5	CH9	To ensure compensation measures relating to bat SACs are co-ordinated across local development projects	Portsmouth Water will engage with FE (owner of Havant Thicket) and share information on bat mitigation measures with the LPA and wider development applicants including the land East of Horndean applicants to assist in developing a strategic mitigation approach that maintains the conservation status of the Bechstein's bat population.		Agreement of detailed Biodiversity Mitigation and Compensation Strategy by LPA.	P	Initial: Date:
B6	CH9	To protect areas of SINC and ancient woodland outside the working areas from accidental incursion	Install protective fencing (high visibility or HERAS) at the edge of the working area, including protecting all retained woodland, scrub and grassland areas and a 15 m buffer zone around all ancient woodlands where practicable, and with expert arboricultural advice where work is required within 15m, and maintain throughout construction.		Integrity of adjacent areas to be monitored on weekly basis by ECoW. Updates to be included in quarterly ECoW progress report to LPA.	C	Initial: Date:

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B7	CH9	To minimise loss of ancient woodland	During detailed design, continue to seek and act on any opportunities to reduce loss of ancient woodland and veteran trees further.		Detailed design to be agreed by LPA.	P	Initial: Date:
B8	CH9	To compensate for loss of ancient woodland (onsite measures) and loss of habitat used by bats and dormice	Habitat creation areas undertaken as advanced planting at Gipsies Plain and Deerslaughter Plain to be protected, and enhanced, if opportunities arise, during construction and managed under long term management plan. Habitat enhancement areas(Figure 9.5) in woodlands within the reservoir site red line boundary to be undertaken early in construction programme, prior to clearance of ancient woodland, and then managed under long term management plan.	Stakeholder comments will be obtained from LPA, Natural England, Environment Agency and Forestry England.	Agreement of detailed Biodiversity Mitigation and Compensation Strategy and EcMP by LPA. Combined total with offsite measures of at least 110 ha of creation / enhancement. Quarterly ECoW progress reports to be provided to LPA during construction.	A	Initial: Date:
B9	CH9	To contribute to compensation for loss of ancient woodland (onsite measures) and loss of habitat used by bats and dormice	During detailed design, identify any opportunities to use ancient woodland soils to contribute to habitat creation. Include separate management of ancient woodland soils for restoration works after passing places on northern access road have been reduced to final size, and any other retained ancient woodland soils, in the soil management plan. During construction, the methods for ancient woodland soil management and re-use will be actioned.	Stakeholder comments will be obtained from LPA, Natural England, Environment Agency and Forestry England.	Agreement of detailed Biodiversity Mitigation and Compensation Strategy and EcMP by LPA. Combined total with offsite measures of at least 110 ha of creation / enhancement. Quarterly ECoW progress reports to be provided to LPA during construction.	A	Initial: Date:
B10	CH9	To contribute to compensation for loss of ancient woodland (onsite measures)	During detailed design, identify suitable areas of ancient woodland indicator ground flora plants for localised transplanting into retained areas of woodland. During site clearance, ECoW or other suitably qualified and experienced ecologist will undertake transplanting.	Stakeholder comments will be obtained from LPA and Natural England.	Agreement of detailed Biodiversity Mitigation and Compensation Strategy by LPA. Quarterly ECoW progress reports to be provided to LPA during construction.	P, C	Initial: Date:
B11	CH9	To contribute to compensation for loss of ancient woodland (offsite measures)	During detailed design, develop a strategy for offsite woodland and wood pasture creation. Methodology is to be confirmed, but it is anticipated to include elements of native tree and shrub planting and natural regeneration using approaches such as rewilding or accelerated succession. Implement strategy during construction phase.	Stakeholder comments will be obtained from LPA and Natural England.	Agreement of detailed Biodiversity Mitigation and Compensation Strategy by LPA. Combined total with	A	Initial: Date:

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					offsite measures of at least 110 ha of creation / enhancement. Quarterly ECoW progress reports to be provided to LPA during construction.		
B12	CH9	To protect veteran and other trees and compensate for losses	The detailed Biodiversity Mitigation and Compensation Strategy will include a strategy for compensating for veteran tree loss. Measures will include options such as moving deadwood, veteranising existing trees and ring-barking non-native trees. Protection of retained trees following standard practice (i.e. BS 5837:2012 Trees in relation to design, demolition and construction – recommendations). A construction exclusion zone will be established using steel mesh panel fencing, or similar, around retained trees where works are not limited by the existing roads or other associated hard infrastructure that could be protecting underlying tree roots. The retained veteran trees shall be assessed by an arboriculturist prior to construction to inform on any potential remedial works that maybe required to manage any structural or physiological defect(s) that increase the likelihood of full or partial failure of the tree or tree part within falling distance of the works. This forms part of a duty of care to both people and property laid down in the Occupiers Liability Acts 1957 and 1984, the Highways Act 1980 and Health and Safety at Work Act 1974. Veteran habitat features are often defects, meaning any potential works will be sympathetic, whilst being reasonable in order to manage the risk of harm to people or property.	Stakeholder comments will be obtained from LPA and Natural England.	Agreement of detailed Biodiversity Mitigation and Compensation Strategy by LPA. Quarterly ECoW progress reports to be provided to LPA during construction.	P, C	Initial: Date:
B13	CH9	To compensate for loss of purple moor-grass and rush pasture	Create compensatory purple moor-grass and rush pasture habitat in glades in Havant Thicket, at least 1:1 for loss of this habitat. Enhance retained wet grassland habitat.	Stakeholder comments will be obtained from LPA and Natural England.	Agreement of detailed Biodiversity Mitigation and Compensation Strategy by LPA. Quarterly ECoW progress reports to be provided to LPA during construction.	P, C	Initial: Date:
B14	CH9	Compensate for habitat losses	Design new habitats during detailed design, including detailed design of wetlands that maximises retention of ancient woodland areas for conversion to wet woodland supporting native tree species. Create new wetland in accordance with design. Create species-rich grassland on the outer embankment of the reservoir. Plant new scrub and enhance retained hedgerows.	Stakeholder comments will be obtained from LPA, Environment Agency and Natural England.	Agreement of detailed Biodiversity Mitigation and Compensation Strategy by LPA. Agreement of detailed wetland design by LPA. Quarterly ECoW progress reports to be provided to LPA during construction.	P, C	Initial: Date:

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B15	CH9, CH15	To protect watercourses from construction related pollution risk	The PC will adopt best practice to avoid pollution of watercourses. This is to include, but is not limited to adherence to Guidelines for Pollution Prevention (GPP), latest Environment Agency pollution guidance available from data.gov, and Construction Industry Research and Information Associated (CIRIA) guidance on the control of water pollution from construction sites.	Contractual responsibilities between Portsmouth Water and PC. Pollution prevention measures will be detailed in a CEMP. The PC will have access to relevant guidance material.	No reportable incidents of construction related watercourse pollution above thresholds set within the water quality monitoring strategy.	P, C	Initial: Date:
B16	CH9	Protection of existing fish populations	During watercourse de-watering activities appropriately screened pumping equipment will be deployed to reduce risk of fish entrainment.	Construction of the pipeline crossing will require de-watering and over pumping of existing watercourse lengths. Approaches to prevent harm to fish will be required as part of the Flood Risk Activity Permits / best practice.	No harm to fish during de-watering activities. Quarterly ECoW progress reports to be provided to LPA during construction.	P, C	Initial: Date:
B17	CH9	Protection of existing fish populations	Development of a fish management plan which may require the removal of fish from any sections of channel requiring de-watering.	Construction of the pipeline crossing will require de-watering and over pumping of existing watercourse lengths. Approaches to prevent harm to fish will be required as part of the Flood Risk Activity Permits / best practice. Any fish removal will need to be undertaken with regard to Environment Agency FR2 consenting requirements.	No harm to fish during any removal process. Quarterly ECoW progress reports to be provided to LPA during construction. Detail of fish removal/translocation reported within Environment Agency FR2 consenting process.	P, C	Initial: Date:
B18	CH9, CH15	Protection of retained watercourses and associated flora and fauna	Silt control measures to be applied to control siltation risks associated with de-watering activities and construction related discharges.	There will be a requirement to manage potential of silt propagation within watercourse channels associated with in-channel working. Required as part of Flood Risk Activity Permits.	No reportable incidents of construction related watercourse pollution above thresholds set within the water quality monitoring strategy. Quarterly ECoW progress reports to be provided to LPA during construction.	P, C	Initial: Date:

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B19	CH9, CH15	Watercourse mitigation and compensation	Develop and implement a Watercourse Mitigation and Compensation Strategy, to include details of measures, responsibility and timing of actions and objectives to deliver onsite and offsite mitigation and compensation. Implement localised woodland stream enhancements upstream of the reservoir. Offsite measures to be developed and implemented in agreement with the Environment Agency, which could include works, such as restoration of a section of Hermitage Stream. Reinstatement of riparian zones (e.g. bank profiles and/or vegetation cover) following disturbance from construction.	Stakeholder comments will be obtained from LPA and Environment Agency.	Agreement of Watercourse Mitigation and Compensation Strategy by statutory authorities. Mitigations and compensation meet objectives within the timescales set out within the Watercourse Mitigation and Compensation Strategy.	A	Initial: Date:
B20	CH9, CH15	To mitigate for the potential effects on aquatic species associated with routine reservoir drawdown events	Design and create backwater features on the Riders Lane Stream to act as refugia during high flows.	Requirement triggered by likely changes in frequency of high flow events.	Functional backwater habitat constructed to designer's requirement.	P, C	Initial: Date:
B21	CH9	To compensate for the loss of Upper Lake	Translocate locally uncommon plants. Pond enhancements in Havant Thicket woodland. Creation of ephemeral shallows within outline wetland design.	Loss of ecological important feature requires compensation.	Translocation undertaken successfully and species becomes established at the receptor site. No deleterious material is transferred to the receptor site (e.g. invasive non-native species).	P	Initial: Date:
B22	CH9	Protection of bats and compensation for loss of roosting opportunities	Felling methods to minimise risks to individual bats will be followed as set out in the bat licence method statement (for roost trees) and (for non-roost trees) a Precautionary Method of Working. These will set out timing and methods of working. Inclusive of any bat boxes required under the licence, at least one bat box will be erected for each tree with high or moderate bat potential that is felled.	Licence to be obtained from Natural England prior to felling of any roost trees	Work to be undertaken in accordance with licence. Quarterly ECoW progress reports to be provided to LPA during construction.	P, C	Initial: Date:
B23	CH9	Protection of bats from indirect harm	Mitigation will be provided for lighting during construction and operation. Any temporary lighting required during construction will be designed to minimise light spill. Permanent lighting will comprise hooded luminaires directed away from vegetation, particularly the boundary hedgerows and treelines to avoid any light spill onto retained	Stakeholder comments will be obtained from LPA and Natural England on detailed lighting design.	Quarterly ECoW progress reports to be provided to LPA during construction.	A	Initial: Date:

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			vegetation. Lighting will follow good practice current at the time of detailed design. The new lighting will be task-related, associated with the visitor centre and associated car park and with no lighting on the access roads. The lux level will be as low as possible to meet their purpose safely and effectively.				
B24	CH9	Protection of dormice and compensation for habitat loss	Vegetation clearance and tree felling methods to minimise risks to individual dormice will be followed as set out in the dormouse licence method statement. This will set out timing and methods of working. The licence will also be followed in terms of compensatory measures, including habitat creation, habitat enhancement and erection of dormouse nest boxes.	Licence to be obtained from Natural England prior to felling of any roost trees	Work to be undertaken in accordance with licence. Quarterly ECoW progress reports to be provided to LPA during construction.	P, C	Initial: Date:
B25	CH9	Protection of otters	Precautionary pre-clearance survey will be undertaken at watercourses and areas of scrub and woodland linked to watercourses. Vegetation clearance in these areas will follow a Precautionary Method of Working. Light spill on watercourses will be avoided.	Further mitigation to be agreed with LPA if evidence of otters is found.	Quarterly ECoW progress reports to be provided to LPA during construction.	P, C	Initial: Date:
B26	CH9	Protection of water voles	Mink monitoring and management will be included in the EcMP if water voles colonise or are introduced to the reservoir site after creation.		Agreement of detailed Biodiversity Mitigation and Compensation Strategy by LPA.	O	Initial: Date:
B27	CH9	Protection of badgers	Precautionary pre-clearance survey will be undertaken at areas of suitable habitat. Vegetation clearance in these areas will follow a Precautionary Method of Working.	A licence will be obtained if badgers colonise the site and a sett requires closure.	Quarterly ECoW progress reports to be provided to LPA during construction.	P, C	Initial: Date:
B28	CH9	Protection of nesting birds	Precautionary pre-clearance survey will be undertaken at areas of suitable habitat if clearance is required in the nesting season (typically March to August). Vegetation clearance in these areas will follow Precautionary Method of Working.		Quarterly ECoW progress reports to be provided to LPA during construction.	P, C	Initial: Date:
B29	CH9	Provision of nesting opportunities	Barn owl and kestrel nesting boxes (minimum of two of each) will be erected in secluded areas of the reservoir site. Detailed design will also include, where practicable, provision of nesting opportunities such as nesting platforms, sand martin / kingfisher banks and / or nesting towers.	Stakeholder comments will be obtained from LPA, Environment Agency and Natural England.	Agreement of detailed Biodiversity Mitigation and Compensation Strategy by LPA. Agreement of detailed wetland design by LPA. Quarterly ECoW progress reports to be provided to LPA during construction.		Initial: Date:
B30	CH9	Protection of reptiles	Retained vegetation will be protected for use as receptor sites.		Quarterly ECoW progress reports to		Initial:

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			Clearance of suitable habitat will follow a Precautionary Method of Works. This is likely to include a combination of translocation and displacement of animals into enhanced adjacent retained habitat. The PMW will set out the season and method of clearance.		be provided to LPA during construction.		Date:
B31	CH9	Protection of great crested newts and other species.	A precautionary eDNA survey will be undertaken at the Upper Lake. Clearance of suitable habitat will follow a Precautionary Method of Works. The PMW will set out the season and method of clearance. If a great crested newt is found during clearance, works will be halted and the ECoW will advise how to proceed and whether a licence is required. As best practice, common amphibians encountered during site clearance will be moved to safe areas of retained habitat.	A licence will be obtained if the Upper Lake is found to have been colonised by great crested newts.	Quarterly ECoW progress reports to be provided to LPA during construction.		Initial: Date:
B32	CH9	Conservation of terrestrial and riparian invertebrate assemblage	Detailed design and the measures set out in the detailed Biodiversity Mitigation and Compensation Strategy will include features to benefit terrestrial and riparian invertebrates. Examples include variation in grassland height, creation and retention of edge vegetation, wetland design, woodland enhancement, inclusion of aspen in planting design and retention and placement of standing and ground level dead wood.		Agreement of detailed Biodiversity Mitigation and Compensation Strategy by LPA. Agreement of detailed wetland design by LPA.		Initial: Date:
B33	CH9	Avoid spread of invasive non-native species	CEMP will include detailed methods to minimise risks of spreading invasive non-native species by managing risks and removing them. Target species will include non-natives in the retained woodland. Strict measures will be followed, in particular, to minimise risks of spreading parrot's feather.		Agreement of CEMP by LPA. Agreement of detailed wetland design by LPA.	P, C	Initial: Date:
B34	CH9	Monitor works to inform adaptive management	The detailed Biodiversity Mitigation and Compensation Strategy will set out monitoring requirements, which will be transposed into the long term EcMP. These will include habitat monitoring to inform management decisions and may also include targeted key species monitoring.		Agreement of detailed Biodiversity Mitigation and Compensation Strategy and EcMP by LPA.	A	Initial: Date:
B35	CH9	To report as required under licences.	Monitoring requirements will be met, as set out in the bat and dormouse licences.		Reports to be provided to Natural England and copied to LPA.	A	Initial: Date:
B36	CH9	Requirement for strategy for capital grants scheme	The detailed Biodiversity Mitigation and Compensation Strategy will include the strategy for a capital grant scheme, targeting the features identified as priorities in the outline detailed Biodiversity Mitigation and Compensation Strategy.		Agreement of detailed Biodiversity Mitigation and Compensation Strategy by LPA.	P	Initial: Date:

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B37	CH9, CH15	Conservation of aquatic invertebrate assemblage	Ephemeral invertebrate communities recorded at distinct locations in Headwater Streams 1-5, notably those containing rare and notable species, will be translocated to appropriate receptor areas, as informed by a baseline ecology survey/Ecological Clerk of Works. The receptor areas may include unaffected areas of Headwater Streams 1-3 or suitable areas in the headwaters of the nearby Park Lane Stream.	Rare and notable species were recorded as part of the 2020 macroinvertebrate surveys undertaken by APEM, which can be used as a guide to where these communities are present noting that they may extend beyond the sample locations.	Agreement with the Environment Agency on translocation and receptor locations.	P	Initial: Date:
Ground conditions							
GC1	CH 10	To prevent injury/death to on-site human health receptors and/or damage to property receptors associated with potential discovery of unexploded ordnance (UXO).	Principal Contractor to undertake further assessment of potential UXO risks to determine the requirement for the implementation of UXO mitigation measures. Mitigation measures to be implemented as appropriate in the CEMP, Health and Safety File, Construction Phase Plan, Health and Safety Risk Assessment Method Statements (RAMS), Emergency Response Plan and HEMP.	A desk study assessment and Zetica UXO risk maps have identified the potential risk of encountering UXO at the site as 'likely'.	Mitigation measures to be included within the CEMP, Health and Safety File, Construction Phase Plan, RAMS, Emergency Response Plan and HEMP as appropriate. All required mitigation measures to be implemented during the construction phase. Residual risks to be managed as appropriate through the operational phase.	A	Initial: Date:
GC2	CH 10	To prevent adverse risks to on-site and off-site human health, controlled waters, property and ecological receptors from the potential disturbance/mobilisation of existing contaminated soil or groundwater and/or introduction of new sources of contamination (i.e. from spillages and leaks) during construction works.	Principal Contractor to undertake works in accordance with the Construction (Design and Management) Regulations (CDM Regulations) 2015 and appropriate guidelines and best practice. Principal Contractor to prepare a CEMP to include (but not limited to) the following mitigation measures: Health and safety RAMS and appropriate Personal Protective Equipment (PPE) to be implemented for the protection of construction workers in accordance with the Control of Substances Hazardous to Health (COSHH) Regulations 2002 (as amended); Minimising the area and duration of soil exposure and timely reinstatement of vegetation or hardstanding to prevent soil erosion; Stockpile management (such as water spraying and covering) to reduce contaminated windblown dust and surface water run-off; Clear segregation between stockpiled material including imported material, excavated material stockpiled for re-use and excavated waste material stockpiled for treatment and / or off-site disposal;	Previous ground investigations and a Generic Quantitative Risk Assessment (GQRA) undertaken for the site did not identify contaminants in soil or groundwater that are likely to present unacceptable risks to identified human health, controlled waters or ecological receptors. There is also the potential for unforeseen contamination to be	Mitigation measures to be included within the CEMP, Health and Safety File, Construction Phase Plan, RAMS and Emergency Response Plan as appropriate. All required mitigation measures to be implemented during the construction phase. Completion of records of	P, C	Initial: Date:

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			Implementation of appropriate dust suppression measures to prevent migration of contaminated dust as required; Implementation of working methods during earthworks to manage groundwater and surface water appropriately and ensure that there is no uncontrolled run-off from the works, any material / waste stockpiles, and storage containers into adjacent surface watercourses; Implementation of appropriate and safe storage of fuel, oils and equipment during construction in accordance with the COSHH Regulations; Implementation of appropriate pollution incident control e.g. plant drip trays and spill kits; Implementation of an appropriate Materials Management Plan (MMP) to document how excavated materials will be managed; and Implementation of a contamination watching brief by suitably qualified and experienced personnel to be completed for the Scheme when excavating areas of potential contamination risk. If unidentified contamination is encountered, works to be suspended in the area and appropriate investigations and remediation to be discussed and agreed with stakeholders and completed in accordance with current best practice. Mitigation measures to be implemented as appropriate in the CEMP, Health and Safety File, Construction Phase Plan, RAMS and Emergency Response Plan.	encountered during earthworks. There is the potential for introducing new sources of contamination (i.e. from spillages and leaks) during construction works.	environmental watching brief in the event of encountering potential contamination.		
GC3	CH 10	To prevent adverse risks to on-site and off-site human health, controlled waters and ecological receptors during the operational phase associated with the potential introduction of new sources of contamination.	Principal Designer to incorporate mitigation/remedial measures in the design of the Scheme to reduce impacts from contamination as required. The Scheme will be operated in accordance with the relevant regulations and best practice guidance in applying Best Available Techniques and pollution prevention. Mitigation measures to be implemented as appropriate in the HEMP.	The operation of the Scheme could potentially introduce new sources of contamination. Spillages and leaks may occur from machinery, and below ground services and leakage from the reservoir could create additional potential pathways for the migration of potential contamination.	The 'as constructed' Scheme is in accordance with the submitted design and planning applications. Mitigation measures to be included within HEMP as appropriate. Risks to be managed as appropriate through the operational phase.	O	Initial: Date:
GC4	CH 10	To maximise the use of site-won materials in the construction of the Scheme and reduce amount of soils disposed off-site.	Principal Designer to seek as far as reasonably practicable, to reduce the amount of soil/materials excavated and/or of a hazardous nature, to re-use and recycle waste soils/materials on-site, where possible and to promote sustainable waste and material resource management. Principal Contractor to construct the Scheme in accordance with the submitted design and planning applications.	Waste soils/materials would be generated during construction through earthworks and foundation installation.	Requirement for re-use of site-won materials to be included in the detailed design. The 'as constructed' Scheme is in accordance with the submitted design and planning applications.	P, C	Initial: Date:
GC5	CH 10	To effectively manage the re-use of waste soils/materials across	Principal Contractor to prepare and implement an appropriate MMP in accordance with the CL:AIRE Definition of Waste: Development Industry Code of Practice and to promote	Waste soils/materials would be generated during construction through	Principal Contractor to prepare a MMP and a Verification	P, C	Initial: Date:

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		the Scheme during construction.	sustainable waste and material resource management in line with the Government's waste hierarchy to allow the re-use of suitable soils during the construction works. Management measures to be implemented as appropriate in the CEMP.	earthworks and foundation installation.	Report to document the re-use of excavated materials. Soil management measures to be included within the CEMP.		
GC6	CH 10	To reduce soil erosion and compaction during construction works.	Principal Contractor to prepare a CEMP to include (but not limited to) the following mitigation measures: Minimising the area and duration of soil exposure and timely reinstatement of vegetation or hardstanding to prevent soil erosion and reduce temporary effects on soil compaction; Stockpile management (such as water spraying and avoiding over stockpiling to reduce compaction of soil and loss of integrity) to reduce soil erosion, windblown dust and surface water run-off; Implementation of appropriate dust suppression measures to prevent soil erosion; Implementation of working methods during earthworks to ensure that there is no uncontrolled run-off from the material / waste stockpiles; and Implementation of an appropriate MMP to document how excavated materials will be managed.	Earthworks will be required for the construction of the Scheme which may result in soil erosion and soil compaction.	Mitigation measures to be included within the CEMP and implemented during the construction works.	P, C	Initial: Date:
GC7	CH 10	To reduce ground stability hazards and protect structures from compaction/ settlement and leakage.	Principal Designer to incorporate geotechnical mitigation/remedial measures in the design to reduce impacts from ground instability, soil compaction/settlement and leakage as required. Principal Contractor to construct the Scheme in accordance with the submitted design and planning applications. The Scheme will be operated in accordance with the relevant regulations and best practice guidance in applying Best Available Techniques.	Requirement for mitigation/remedial measures to be determined based on further assessment of ground conditions as part of detailed design.	Mitigation/remedial measures to be included in the detailed design. The 'as constructed' Scheme is in accordance with the submitted design and planning applications.	A	Initial: Date:
GC8	CH10	To reduce impacts on mineral resources.	Principal Designer to prioritise the re-use of site-won mineral resources (topsoil and clay) within the Scheme. Principal Contractor to construct the Scheme in accordance with the submitted design and planning applications.	Minerals and Waste Consultation Areas for clay resources are present within the site. Clay is proposed to be excavated from borrow pits located within the footprint of the reservoir for re-use within the reservoir embankment.	Management measures to be included in the detailed design. The 'as constructed' Scheme is in accordance with the submitted design and planning applications.	P, C	Initial: Date:
Landscape and Visual							
LV1	CH11	Limit damage to existing trees, shrubs, hedges and other	An Arboricultural Impact Assessment (AIA) and Arboricultural Method Statement (AMS) will be required, this is to be updated /produced alongside the detailed design stages of The Scheme. It should define the requirements and methods to be used to ensure protection in		Mitigation measures to be included in the CEMP.	P, C	Initial: Date:

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		significant vegetation to be retained.	the construction period. All tree root protection areas identified, shall be protected by protection fencing in accordance with BS 5837:2012.		Protection to be reviewed and monitored on site by an Arboricultrist or ECoW.		
LV2	CH11	Limit damage to existing trees, shrubs, hedges and other significant vegetation to be retained.	The layout and construction of site compounds, soil storage areas, haul routes and any other construction site requirements to be designed and planned to ensure minimal impact on existing vegetation to be retained. Allow appropriate clearance from the edge of retained vegetation to minimise the requirements for cutting back or tree surgery. Requirements of which should be agreed with an Arboricultrist or ECoW.		Mitigation measures to be included in the CEMP.	P, C	Initial: Date:
LV3	CH11	Limit damage to existing vegetation and grassland areas	A working area will be defined and agreed before construction commences. The area is to be marked on site by fencing with agreed access points. No works, vehicular access or storage will be permitted outside of the agreed working area. The working area to be agreed and monitored by the ECoW.		Mitigation measures to be included in the CEMP. Working area to be agreed preconstruction and monitored on site by the ECoW in the construction phase.	P, C	Initial: Date:
LV4	CH11	Limit damage to existing trees, shrubs, hedges and other significant vegetation to be retained.	No vegetation or trees other than those indicated on the site clearance plans, should be removed or pruned with the prior agreement with the ECoW.		Mitigation measures to be included in the CEMP. Any vegetation to be removed to be agreed on site with ECoW.	P, C	Initial: Date:
LV5	CH11	Reinstatement of landscape disturbed by the works.	A Soil Management Plan will be developed within the detailed design stages and its recommendations implemented on site. This should include methodology for stripping, storage, de-compacting, backfilling, re-spreading, cultivation, amelioration and reuse of all existing topsoil and subsoil. The plan should be monitored on site by a Soil Scientist to ensure ground preparation, soil handling and cultivation is correctly carried out and soils are not compacted		Mitigation measures to be included in the CEMP.	P, C	Initial: Date:
LV6	CH11	Reinstatement of landscape disturbed by the works	Where removal of sections of scrub, hedgerows and trees are unavoidable, appropriate tree and hedge species will be replanted along the line of the existing hedge or within the area of scrub. These will be managed to restore the area to its pre-construction state.		Mitigation measures to be included in the CEMP.	P, C	Initial: Date:
LV7	CH11	Implementation of mitigation planting and seeding.	Ensure mitigation planting is implemented to provide enhancement and replacement of landscape and habitats, as well as integrating The Scheme into its surroundings and providing screening functions. Planting plans to be prepared in coordination with the Biodiversity requirements. Implementation is to be monitored and inspected on site.		Mitigation measures to be included in the CEMP.	P, C	Initial: Date:
LV8	CH11	Implementation of mitigation planting and seeding.	Mitigation planting and seeding is to be implemented in advance or as soon as is possible following completion of each area, section or phase of works. This is to ensure any temporary period of effects is reduced and mitigation planting has longer to establish before completion of the works. A strategy for advance and phased mitigation planting / landscape		Mitigation measures to be included in the CEMP.	P, C	Initial: Date:

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			reinstatement should be developed in the detail design stage. The strategy should be reviewed within the construction period and updated regularly to take advantage of any areas where the programme of planting works can be brought forward.		Strategy of advance planting to be agreed preconstruction and reviewed throughout the construction period.		
LV9	CH11	Successful establishment of mitigation planting and seeding.	A five-year aftercare period for all soft landscape is to be included within the construction contract to ensure successful establishment. Maintenance within the period to be carried out in accordance with an agreed management plan, maintenance specification and maintenance schedule, all to be developed and agreed in the detailed design stages. Records of all maintenance actions to be kept by the contractor /management company and provided for regular inspection when requested. Regular inspection and site monitoring to be undertaken throughout the period to ensure establishment targets are being achieved.		Mitigation measures to be included in the CEMP. Management Plan, maintenance specification and schedules to be agreed and put in place preconstruction. Regular inspection and site monitoring to be undertaken throughout the construction period.	C, O	Initial: Date:
LV10		Successful long-term management of landscape and habitats.	Management of the landscape and habitats during the years of operation (post five-year aftercare period) will be agreed in consultation with Portsmouth Water and captured in a long-term management plan. This will include measures to maintain and enhance the landscape and visual amenity of the area and to encourage ecological interest through habitat management (including the requirements set out in the Biodiversity section above)		Mitigation measures to be included in the CEMP. Long term management plan to be agreed and put in place.	O	Initial: Date:

Noise and Vibration

NV1	CH12	To limit and control noise emissions during construction to avoid direct and indirect impacts on Community and ecological receptors.	Works will be carried out in accordance with the Best Practicable Means, as defined in Section 72 of the Control of Pollution Act 1974 and Section 79 of the Environment Protection Act 1990, and noise control measures, as suggested by BS 5228 Part 1 Only plant which complies with the relevant EU/UK noise limits applicable to that equipment or is in no way noisier than would be expected from the noise levels quoted in BS 5228: 2009+A1:2014 Part 1 will be used. This would include all vehicles and mechanical plant used for the purpose of the works to be fitted with effective exhaust silencers and maintained in good and efficient working order; All compressors and generators should be 'sound reduced' models fitted with properly lined and sealed acoustic covers which should be kept closed whenever the machines are in use, and all ancillary pneumatic percussive tools should be fitted with mufflers or suppressers of the type recommended by the manufacturers and should be kept in a good state of repair; Machines in intermittent use should be shut down in the intervening periods between work, or where this is impracticable, throttled down to a minimum;	To minimise the emission of noise from the site	Specification of plant noise level	P, C	Initial: Date:
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			Where practicable, plant with directional noise characteristics should be positioned so as to minimise noise at adjacent properties; The works covered by this application will be planned so as to ensure that as much work as practicable (taking into account the needs to minimise disruption to trains when the pipeline crosses the rail line and ensuring the safety of the public and workforce) takes place during normal daytime working hours; Ensuring that all staff and operatives are briefed on the requirement to minimise nuisance from site activities, via tool box talks etc.; Regular plant maintenance; all plant and equipment should be examined daily, for defects prior to the start of works and under no circumstances should defective plant be used; Avoid any reversing on site as far as reasonably practicable – if reversing is required, utilise broadband low impact reversing alarms or banksmen.				
NV2	CH12	To limit and control noise emissions during construction to avoid direct and indirect impacts on Community and ecological receptors.	Use of temporary noise screens or partial enclosures around particularly noisy activities, for example pneumatic breakers used in close proximity to dwellings	Current assessment shows potential for significant night time impacts at receptors on Swanmore Road.	Specification of noise barriers and input to CEMP	P, C	Initial: Date:
NV3	CH12	Avoid night-time impacts	Avoid night-time works where possible, particularly in proximity to receptors on Swanmore Road. Where night-time works cannot be avoided, acoustic screens will be erected to block line-of-sight between the plant and receptor to minimise impacts	Current assessment shows potential for significant night time impacts at receptors on Swanmore Road.	Input to CEMP	P, C	Initial: Date:
NV4	CH12	Reassess Noise and Vibration Impacts	Reassess noise and vibration impacts once method of working, plant and programme have been agreed	Current assessment shows potential for significant impacts	New assessment	P	Initial: Date:
NV5	CH12	Noise and vibration monitoring	Undertake targeted monitoring of noise and vibration levels when works are in close proximity to sensitive receptors. Frequency and locations to be agreed with local authority	Ensure works do not cause significant noise or vibration impacts	Report measured levels to the local authority within an agreed timeframe	C	Initial: Date:
NV6	CH12	To limit and control noise emissions during construction to avoid direct and indirect impacts on Community and ecological receptors.	Agree thresholds for noise levels and durations of works with the local authority above which noise insulation or temporary rehousing will be offered to affected residents	Current assessment shows potential for significant night time impacts at receptors on Swanmore Road.	Input to CEMP	P	
Traffic and transport							
TT1	CH13	Minimise impact of HGV traffic on highway network.	Prepare a Construction Traffic Management Plan to manage the impact of HGV traffic on the highway network.	Impacts on local road network from HGV traffic.	New report to be included within CEMP	P	Initial: Date:
TT2	CH13	Minimise impact of construction traffic	Manage hours of working to avoid the import or export of goods and materials to avoid network peak hours.	Impacts on local road network from HGV traffic.	To be included within CTMP	P, C	Initial: Date:

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		during typical network peak hours					
TT3	CH13	Minimise use of construction routes on local roads.	Utilise the Strategic Road Network where possible for the import and export of goods and materials.	Impacts on local road network from HGV traffic.	To be included within CTMP	P, C	Initial: Date:
TT4	CH13	Minimise use of construction routes on local roads.	Utilise the northern access where practicable for the import and export of goods and materials.	Impacts on local road network from HGV traffic.	To be included within CTMP	P, C	Initial: Date:
TT5	CH13	Minimise the impact of PRow closure / diversion.	Develop alternative routeing strategy for PRow	There is suitable mitigation available that will prevent significant negative effects relating to closure of the PRow.	To be included within CTMP	P, C	Initial: Date:
TT6	CH13	Minimise staff car trips	Develop a construction travel plan to maximise opportunities for staff travel to and from the site using modes other than the private car,	To minimise proportion of car trips to and from the reservoir and access road site.	To be included within CTMP	P, C	Initial: Date:
TT9	CH13	Maximise opportunities for all modes of travel.	Develop an operational travel plan to maximise opportunities for staff and visitors to travel to and from the site using modes other than the private car.	It is assumed that maximising opportunities for travel other than the private car would be to the benefit of users of the reservoir and the local community.	New report to be developed during operation of the reservoir site.	O	Initial: Date:

Material resources and waste

MRW1	CH14	To maximise the use of site-won materials in construction.	Design Team to continue to develop the design considering resource efficiency and based on the majority of earthworks materials being sourced from the reservoir site. Principal Contractor to implement the Scheme as set out in the design and planning applications.	The earthworks materials required for construction are available within the Scheme's boundary. The assessment in the Environmental Statement assumes earthworks materials will be sourced from the reservoir site for use in construction of the embankments, wetland retention structure and clay blanket.	Statement from Design Team stating quantity of earthworks materials required to construct the Scheme and quantity of earthworks materials sourced from site-won materials. The Scheme 'as constructed' is in accordance with the submitted design and planning applications.	P, C	Initial: Date:
MRW2	CH14	To manage wastes effectively in accordance with the waste hierarchy and waste regulations.	Principal Contractor to produce a Site Waste Management Plan (SWMP) with planned waste management for forecast wastes and monitoring of actual waste management during construction including the waste codes, quantities and destination of wastes removed from the site.	N/A	The Principal Contractor's SWMP will act as the record of waste management and can be used for reporting to the Local	P, C	Initial: Date:

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					Authority, as required. A record of Waste Transfer Notes (WTNs) and Hazardous Waste Consignment Notes (HWCNs) will also need to be kept for a minimum of two and three years respectively.		
MRW3	CH14	To effectively reuse excavated materials across the Scheme.	Principal Contractor to consult with the Environment Agency regarding proposed approach to reuse of excavated materials, as set out in the Materials Management Strategy (ref. HTR-ATK-ZZ-ZZ-RP-Z-0139), and produce a Materials Management Plan (MMP) in accordance with CL:AIRE Definition of Waste: Development Industry Code of Practice.	This is the preferred approach for reuse of excavated materials on-site. Subject to agreement from Environment Agency and Local Authority on approach to materials management.	Reporting requirements set out in CL:AIRE Definition of Waste: Development Industry Code of Practice. This includes the requirement to produce a Verification Report following use of excavated materials.	P, C	Initial: Date:
MRW4	CH14	To prevent generation of wastes through earthworks at the reservoir site and access road(s).	Excavated materials from the reservoir site and access road(s) that are chemically and geotechnically suitable for use will be reused on-site—preventing the generation of excavation wastes that need removal and management off-site.	The excavation of topsoil, subsoil and naturally occurring geology at the reservoir site and access road(s) will generate materials that need to be planned for use in the detailed design and effectively managed during construction to prevent the generation of significant quantities of waste. An MMP will be required for reuse of these materials on-site.	Reuse of excavation materials on-site will be recorded in the MMP. Any excavated materials that become waste and are removed from site will be recorded in the SWMP.	P, C	Initial: Date:
MRW5	CH14	To minimise construction and demolition waste disposed of at landfill.	Aim to recover 95% by weight of non-hazardous construction and demolition waste in accordance with the Hampshire Minerals and Waste Plan 2013. This action will be monitored through the SWMP.	Target does not include excavation materials (i.e. 17 05 04) or hazardous wastes.	Performance and reporting will be through the Principal Contractor's SWMP.	C	Initial: Date:
MRW6	CH14	To ensure vegetation and wood and timber arising from construction is managed effectively.	Principal Contractor to develop a strategy for managing vegetation, wood and timber in accordance with the waste hierarchy. The strategy will need to identify how timber will be graded, processed and stored to maintain its quality. Opportunities to reuse the timber within the Scheme or interested third parties will need to be explored.	Principal Contractor is responsible for management of stripped vegetation and wood and timber arising from unavoidable woodland loss.	Management of wastes will be reported through the Principal Contractor's SWMP.	P, C	Initial: Date:

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Water environment							
W1	CH9, CH15	To protect watercourses and groundwater from construction related pollution risk	A CEMP will be developed which will, as a minimum, include the following pollution prevention measures: - An agreed process for managing the volume and quality of discharge of water for Construction compounds (including CSS) and other areas of hard standing and haulage roads, which will discharge into the site water management systems via shut-off sluice valves which are normally in the closed position and only opened if surface water run-off is of a desired quality. The volume and quality maintenance regime will include an agreed process for monitoring and managed discharge of water from each compound via a sluice valve. - Detail on discharge water quality standards to be attained and suitable technologies (e.g. settlement tanks, silt busters, etc.) which will be used to remove pollutants such as fine sediments (silts), debris and other pollutants during the dewatering process. The discharge methodology will be agreed with the EA where discharge consents are required. Treatment of arisings is required to maintain appropriate quality using treatment plant prior to discharge to the watercourse. - Flows from the construction site should not increase flood risk or cause watercourse scouring. Up to 1:30 rainfall scenario will be attenuated. - Environmental monitoring to demonstrate compliance (see W3 below). - All oil or chemical storage areas should be bunded and lined in order to contain pollutants in the event of leakage. There should be no storage of materials (or chemicals/fuels) within 8m of any watercourse. All machines shall use oil trays when parked on site; all fuel storage tanks shall be adequately bunded to prevent pollution of the river. All reasonable requirements specified by the Environment Agency shall be in place to prevent fuel, lubricants, or any other fluids or materials entering the watercourse. - Procedures to deal with accidental leakages or spillages of hydrocarbons and oils, or accidental release of hazardous substances during construction works. - Debris for any polluting substances that are being brought on site and used as part of the construction process. Measures to protect the aquatic ecology are set out in B14 and B20 above. The PC will adopt best practice to avoid pollution of watercourses. This is to include, but is not limited to, adherence to Guidelines for Pollution Prevention (GPP), latest Environment Agency pollution guidance available from data.gov, and Construction Industry Research and Information Associated (CIRIA) guidance on the control of water pollution from construction sites.	Contractual responsibilities between Portsmouth Water and PC. Pollution prevention measures will be detailed in the CEMP. The PC will have access to relevant guidance material.	No reportable incidents of construction related watercourse pollution above thresholds set within the water quality monitoring strategy.	P, C	Initial: Date:
W2	CH15	To protect watercourses and groundwater from	A Drainage Management Plan will be developed, which will include, as a minimum the following detail on drainage design and management:	Contractual responsibilities between Portsmouth Water and PC.	No reportable incidents of construction related watercourse pollution	P, C	Initial: Date:

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		construction related pollution risk	- Design standards - any areas of surface or foul water drainage affected by the works should be identified and each section of affected drainage should be briefly described, and a proposed solution provided. - Pollution control/interception - any interceptor solutions should be identified on discipline specific drawings and reviewed during the relevant design stages. For example, any new car parks and associated access roads or haulage routes will incorporate treatment and are transferred to site drainage system. - Outfalls - known outfalls should be identified and where possible any drainage should tie in with the existing outfalls. Where no existing drainage outfalls are present/known, SuDS principles should be considered to ensure that the discharge rate and volume is suitable. The designing of new drainage catchments should include consideration of any potential attenuation sites. High-level drainage catchment assessments should be undertaken to determine the potential attenuation requirements. It is assumed that drainage scenarios which replicate the current un-attenuated drainage system will remain with no requirement to provide additional water storage. - Earthworks - a review of existing earthworks and drainage provision should be undertaken to assess the required interventions to be developed at subsequent design stages. Areas are to be identified which currently do not have any drainage but is required. - Access Roads and Haulage Routes –the development of drainage from the access roads and haulage routes including the modification/re-alignment, connection into or new access road / haulage road infrastructure will be included. Construction mitigation is likely to include but not be limited to measures within the PPGs, e.g. to attenuate and treat polluted runoff. Haul roads will be unpaved and covered in hard core or gravel. Surface water run-off will be collected and treated prior to discharge. - Third Party Land - drainage interventions to support the reservoir may affect third party land. Assessment of drainage interventions should account for the following scenarios but not limited to: third party land drainage which currently affects the infrastructure; drainage interventions required for the Scheme which may affect third party land; and, outfall required for drainage which is located within third party land. Stakeholder engagement and consultation should be undertaken at subsequent design stages when required drainage proposals are further defined. Continued stakeholder engagement will be necessary to obtain consents. - Surface Water Drains – With particular relevance for the pipeline corridor, detail on the surface water networks in the vicinity of the pipeline construction areas which may transfer pollutants to the nearby river. - Ecology – Key ecological features to be considered as part of the construction work, including where EcoW may be required. - Foul – all water generated on-site during construction (CCS) and operation (Visitor Centre, Control House) will be transferred to foul.	Pollution prevention measures will be detailed in the CEMP. The PC will have access to relevant guidance material.	above thresholds set within the water quality monitoring strategy.		

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W3	CH15	To protect watercourses and groundwater from construction related pollution risk	A water quality monitoring strategy will be included in the CEMP, discussed and agreed with the Environment Agency. This will make provision for parameters monitored, sample locations frequency and duration of monitoring. This will include who should undertake sampling, any requirements for visual checks, inclusion of additional monitoring points as part of baseline monitoring, sampling/ laboratory analysis accreditation requirements. The strategy should make provision for continuous flow and water quality monitoring in downstream watercourses as well as visual daily monitoring will be undertaken to ensure that the discharge does not result in any scouring of the beds and banks or churn up of silts from the riverbed.	Contractual responsibilities between Portsmouth Water and PC. The strategy will be detailed in the CEMP. The PC will have access to relevant guidance material.	No reportable incidents of construction related watercourse pollution above thresholds set within the water quality monitoring strategy.	P, C	Initial: Date:
W4	CH15	To protect aquatic ecology in Riders Lane Stream and Hermitage Stream	Construction flow management measures around the dewatering of the area within the footprint of the reservoir to ensure the waters from the headwaters are captured and diverted around the site and fed into the top of the Riders Lane Stream downstream of the footprint with proper attenuation and flow management in place, notably to not allow the stream to dry up; and prevent peak flows.	Contractual responsibilities between Portsmouth Water and PC. Pollution prevention measures will be detailed in the CEMP. The PC will have access to relevant guidance material.	No reportable incidents or fish kills.	P, C	Initial: Date:
W5	CH15	To protect the headwater stream ecology of Park Lane Stream	There will be no water discharges into the Park Lane Stream catchment. All water will be channelled to the head of Riders Lane Stream where flow and quality will be controlled.	Contractual responsibilities between Portsmouth Water and PC. Pollution prevention measures will be detailed in the CEMP. The PC will have access to relevant guidance material.	No reportable incidents or fish kills.	P, C	Initial: Date:
W6	CH15	To protect the ecology for headwater streams flowing into the River Lavant	Habitats in new toe drains and ditch diversions (for watercourses draining to the River Lavant) will be improved to increase their ecological potential to provide habitats to a wider range of species than they are expected to contain at the moment.	Contractual responsibilities between Portsmouth Water and PC. Detail will be provided in the Outline Biodiversity Mitigation and Compensation Strategy.	Agreement from the Environment Agency	P, C	Initial: Date:
Effects on climate							
EC1	CH16	To reduce greenhouse gas emissions associated with the production and transportation of materials	Materials will be sourced onsite as far as possible. Where this is not possible, local materials will be used. The overall volumes of material needed will be minimised through lean design and 'soft' engineering approaches.		Statement from Design Team stating quantity of materials required to construct the Scheme and quantity of materials sourced from site-won materials. The Scheme 'as constructed' is in accordance with the	P, C	Initial: Date:

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					submitted design and planning applications.		
EC2	CH16	To reduce greenhouse gas emissions associated with operation of the reservoir	Passive level controls will be used where possible, and electricity consumption in the control house will be minimised by provision of water and dissolved oxygen monitoring.		Implementation of passive level controls and monitoring schedule.	A	Initial: Date:
EC3	CH16	To reduce greenhouse gas emissions associated with operation of the visitor centre, educational hide and public realm.	The visitor centre will achieve net zero carbon in operation, using the London Energy Transformation Initiative (LETI) Climate Emergency Design Guide approach. A living roof will be used to sequester carbon. Sustainable transport options will be promoted through provision of footpaths and cycle paths.		Visitor centre has been assessed to be net zero carbon in operation	A	Initial: Date:
Vulnerability to climate change							
VCC1	CH17	Maintain site access to minimise delays to construction schedule caused by extreme weather	Maintain multiple access routes to working areas where possible.		Maintenance and inspection schedule	C	Initial: Date:
VCC2	CH17	Live water quality monitoring to initiate reservoir mixing system to achieve efficient thermal destratification	Monitor reservoir temperature at various depths to establish the temperature profile and identify the onset of thermal stratification. This system will be complemented by dissolved oxygen monitoring at depth.		Alerts system in line with best practice.	O	Initial: Date:
VCC3	CH17	Maintain high quality treated water.	Regular abstraction water quality monitoring.		Alerts system in line with best practice.	O	Initial: Date:
VCC4	CH17	Avoid disruption to water treatment at Farlington WTW caused by failures in supply chain, e.g. due to extreme weather preventing deliveries.	Maintain stores of treatment chemicals at Farlington.		Maintenance and inspection schedule	O	Initial: Date:
VCC5	CH17	Confirmation of embankment stability under climate change scenarios that require more regular emergency draw downs.	Detailed study of the effects on embankment stability of rapid drawdown of the reservoir (e.g. in emergency drawdown) to be addressed with further analysis and presented in the Reservoir Design Report (noting that draw downs could become more common with climate change).		Undertake study.	P	Initial: Date:

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VCC6	CH17	Ensure safe reservoir operation during and after extreme weather.	Havant Thicket Reservoir will be operated and managed by Portsmouth Water in line with the requirements of the Reservoirs Act 1975.		Inspections in accordance with the Reservoir Act 1975 requirements.	O	Initial: Date:
VCC7	CH17	Avoid climate change impacts on habitats in the wetland.	Active management of water levels in the wetland to improve its resilience to climate change.		Maintenance and inspection schedule of wetland	O	Initial: Date:
VCC8	CH17	Reduce fire risk during hot dry weather	Special site management measures during extreme hot weather to reduce fire risk – for example a no BBQ policy.		Maintenance and inspection schedule	O	Initial: Date:
VCC9	CH17	Maintain safe reservoir operation during extreme weather	Detailed planning for power outages to the control room.		Planning schedule to be implemented as standard process.	O	Initial: Date:
VCC10	CH17	Avoid and reduce impacts from flooding brought about by extreme weather or during wetter winters.	Follow actions and commitments set out in FRA to avoid flooding brought about by extreme rain or during wetter winters (to be implemented by the drainage strategy plan, construction environment management plan and flood risk activity permits.).		Implementation of the drainage strategy plan, construction environment management plan and flood risk activity permits	A	Initial: Date:

Population and human health

PHH1	CH18	To maintain active travel and safe access to open space, to opportunities for recreation & leisure and to work & training	Retain existing pedestrian accesses where possible. Maintain safe access through traffic marshalling, traffic management and use of fencing to separate the public from construction activity and traffic.	N/A	No harm to anyone. Daily site audits by a representative from the Principal Contractor. Measures to be included within CTMP to be agreed by LPA.	C	
PHH2	CH18	To minimise the adverse effect on active travel and on access to open space, access to opportunities for recreation & leisure and access to work & training.	Keep the public informed on project progress and on the timing and extent of road/footpath/PROW/amenity spaces closures/diversions	N/A	Measures to be included within CTMP to be agreed by LPA	C	Initial: Date:
PHH3	CH18	Minimise the adverse effect from noise pollution and vibration	Keep the public and residents fully informed of the scale, nature and timing of the works	N/A	No noise complaints. Mitigation to be	C	Initial: Date:

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					included in CEMP to be approved by LPA		
PHH4	CH18	To minimise adverse effects from air pollution	Include electric vehicle charging points within the proposed car park	N/A	Approval from LPA on the detailed design. The 'as constructed' Scheme is in accordance with approved design.	C	Initial: Date:
PHH5	CH18	To maintain visitor safety	Delineate and/or provide other measures to slow cyclists down to avoid potential conflict points with pedestrians.	There is the potential for collisions at conflict points in the current design	No harm to anyone. Approval from LPA on the detailed design. The 'as constructed' Scheme is in accordance with approved design.	C	Initial: Date:
PHH6	CH18	To maintain visitor safety	Reduce the risk of drowning by following Environment Agency guidance and adopting best practice from similar assets including education in local schools on risks of swimming in deep open water and provision of appropriate signage and public safety measures e.g. life rings	N/A	No harm to anyone. Approval from LPA and Environment Agency on the detailed design. The 'as constructed' Scheme is in accordance with the approved design.	C, O	Initial: Date:
PHH7	CH18	To minimise adverse effects on active travel	Introduce additional traffic calming to discourage visitors and operational traffic from using the southern access route to enter the reservoir site	There is the potential for traffic using the southern access route to have an unacceptable effect on active travel. The local highway authority agrees to the mitigation	Approval from LPA on the detailed design. The 'as constructed' Scheme is in accordance with the approved design.	C	Initial: Date:
PHH8	CH18	To enhance access to work and training for local communities, the unemployed and low-income groups.	Identify opportunities to provide work and training	Portsmouth Water will engage with local agencies to maximise potential work and training opportunities during construction and operation of the Scheme.	Development is implemented in accordance with a scheme approved by the LPA.	C, O	Initial: Date:

Major Accidents and Disasters

AD1	CH20	To reduce the risk of instability of existing	Further ground investigation to confirm depth of shear planes.	The risk will mitigated in the design by digging out and	During detailed design, the risk of	P	Initial:
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Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
		ground due to existing shear planes in clay under proposed embankment		recompacting the top 3m of ground below the footprint of the embankment.	instability of existing ground reduced by output of further Ground Investigation.		Date:
AD2	CH20	To understand the potential for natural cavities such as swallow holes and sinkholes to be present beneath the Scheme.	The risk will be further mitigated by undertaking a geophysical survey of the site.	Risk mitigated by review of the presence of sinkholes within aerial photography and geomorphological field mapping. No sinkholes are recorded within the reservoir site and pipeline corridor.	During detailed design, the geophysical survey of the site will inform the understanding of potential risk for natural cavities.	P	Initial: Date:
AD3	CH20	To reduce the risk of fluvial flooding from streams flowing into reservoir and rainwater directly falling on the reservoir.	Maintenance and regular inspection of overflow spillway will be included in operating procedures.	Flood storage capacity in the reservoir has been assessed to contain flood inflows during operation below the embankment crest in an extreme event ie probable maximum flood, with an overflow spillway designed to pass excess floodwater The construction of the new reservoir will actually reduce the existing risk of flooding as the new reservoir will act to store floodwater from upstream.	No fluvial flooding of properties. Continual maintenance records of spillway.	O	Initial: Date:
AD4	CH20	To mitigate the potential for extreme rainfall to result in a rise in groundwater levels leading to increased spring flows.	Water invasion during borrow pit excavation to be managed by appointed contractor. Water from incoming streams diverted and pumped elsewhere, up to a 1 in 30 storm event – contractor to include in design and construction methodology	Reservoir design includes lining and cut-offs to virtually eliminate seepage loss from reservoir when full.	No flooding Production and adherence to water management plans during construction	C, O	Initial: Date:
AD5	CH20	To reduce potential for the chalk aquifer and/or the Havant and Bedhampton Springs becoming polluted and drinking water quality compromised.	Contractors method statement in accordance with EA pollution prevention guidance	This risk will be mitigated by the contractor during construction. Precautions to be included within contractor's method of working to minimise risk of pollution following EA guidance on pollution prevention.	No pollution of the chalk aquifer and/or Havant and Bedhampton Springs due to successful implementation of contractor management plans	C	Initial: Date:

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AD6	CH20	To prevent major release of contamination into the reservoir	Portsmouth Water Havant Thicket Reservoir Water Safety Plan and potential catchment management measures to be implemented and adhered to.	Volatile Organic Compound (VOC) monitoring will be provided at the abstraction intake to monitor organic pollutants. Automatic monitoring of other water quality parameters will also be included at the WTW including pH, ammonia and turbidity to ensure no pollution reaches the WTW. Granular Activated Carbon (GAC) will also be included within the WTW filters. Physical barriers will also be include eg reinforced concrete kerbing to control access.	Major release of contamination prevented through production of Water Safety Plan	O	Initial: Date:
AD7	CH20	To reduce potential of erosion causing instability of embankment due to cyclonic storms and heavy rain causing damage to infrasture.	Regular inspections of embankment in operation.	Rock armour designed to protect inside face slope is installed as per design.	No erosion or instability of the embankment caused by storms	O	Initial: Date:
AD8	CH20	To reduce risk of flooding of properties due to thunderstorms.	Maintenance and regular inspection of overflow spillway will be included in operating procedures.	Flood storage capacity in the reservoir has been assessed to contain flood inflows below the embankment crest, with an overflow spillway designed to pass excess floodwater. Flood risk will be reduced due to storage capacity of reservoir.	No flooding of properties due to successful maintenance and inspections of spillway.	O	Initial: Date:
AD9	CH20	To reduce erosion causing instability of embankment from high winds causing waves.	Regular inspections of embankment in operation.	Rock armour designed to protect inside face slope to accommodate 1:200 chance event is installed.	No erosion or instability of the embankment caused by high winds	O	Initial: Date:
AD10	CH20	To reduce risk of road traffic accidents due to construction traffic.	Traffic Management Plan to be implemented by the appointed contractor.	Construction traffic to only use specific access routes at specific times.	No road traffic accidents or casualties and	C	Initial: Date:

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
					agreement and implementation of traffic management plan		
AD11	CH20	To prevent aircraft crashing into reservoir/embankment	Ensuring that OS and other publicly available maps are updated to include the reservoir surface area, so that it does not appear as an open field on pilot's navigational systems.	Risk to the reservoir integrity is mitigated with erosion protection on the embankment slopes for a wave from a crashing aircraft. Risk to water quality is mitigated by the water quality telemetry systems providing alarms if contaminants from an aircraft are picked up.	No casualties, damage to property or flooding.	O	Initial: Date:
AD12	CH20	To prevent potential loss of life and property damage from breach of the embankment.	If imminent breach is suspected, the Emergency Drawdown strategy will be enacted, lowering the reservoir level quickly, without causing flooding, and thus reducing the risk and consequence of breach. Drawdown will be able to start in a few hours and the capacity of the drawdown pipes is designed to achieve reduction in reservoir water level by a third in 6 days (to meet EA guideline requirements).	The reservoir embankment will be inspected regularly for any indication of structural weakening or of potential to breach. Pipeline has been checked to provide capacity for emergency drawdown discharge in the event of instability in the embankment or other dam safety incident. Drainage blanket added to inside face of embankment to reduce instability in rapid drawdown condition. Instrumentation linked to telemetry will be installed to monitor embankment movement, seepage, pore water pressures to give alarm of rapid changes.	Implementation of Emergency Drawdown Strategy. No breach of the embankment and therefore no loss of life or damage to property.	O	Initial: Date:
AD13	CH20	To reduce risk of damage to control house from building fire or failure.	Daily surveillance of reservoir, and alarms connected to PW system	Control house to be built non-flammable materials, reducing risk of fire damage to pipeline and control	Implementation of inspection and surveillance schedule.	O	Initial: Date:

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
				valves inside building. The balustrades of the visitor centre are to be metal fins and the proposed bridge deck is currently being proposed as timber. The timber would be treated with a flame retardant.			
AD14	CH20	To prevent risk of acts of terrorism leading to release of water	Daily surveillance of reservoir, and alarms connected to Portsmouth Water system. Use of CCTV to be determined at detailed design.	The consequence of reservoir breach is assessed and understood through the use of a hydraulic model in the Flood Risk Assessment. The flood outlines will be used before commissioning in an Emergency Response Plan to prioritise areas and routes for evacuation, although it is acknowledged that there is unlikely to be significant warning in such an event.	Implementation of inspection and surveillance schedule.	O	Initial: Date:
AD15	CH20	To prevent risk of potential cyber attacks	Appointed contractor is required to undertake detailed design of all new and modified systems in line with cyber security standards.	Design includes the selection of cyber secure systems, which will be integrated with existing Portsmouth Water communications systems and will monitor the lines for cyber issues.	Detailed design of systems in line with cyber security standards.	C, O	Initial: Date:
AD16	CH20	To prevent vandalism (fires)	Daily surveillance of reservoir, and alarms connected to PW system. There will be staff training and awareness of these incidents and security systems, such as public address, to aid to the incident.	Control house to be built from concrete with cladding to be not flammable, reducing risk of fire damage to pipes and control valves inside building. Signed and designated routes for the public to escape from the incident area.	Implementation of inspection and surveillance schedule. Staff training programme.	C, O	Initial: Date:
AD17	CH20	To prevent vandalism (water)	Daily surveillance of reservoir, and alarms to be set within water quality monitoring system.	Intakes from reservoir will be remote from the	Implementation of inspection and	O	Initial: Date:

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
				embankment crest so any pollutants could not be dropped directly into the intake system to the supply pipeline.	surveillance schedule.		
AD18	CH20	To prevent criminal damage	Daily inspection and alarms to be set for sudden changes in water level.	Reinforcement in two lines of concrete kerbs / bedding to make it difficult to dig across the crest.	Implementation of inspection and surveillance schedule.	O	Initial: Date:
AD20	CH20	To prevent anti-scoial behaviour	Appropriate physical protection that include well designed security features. Special consideration will be given to areas where the human activity is concentrated in order to reduce risk of crime and built a sense of sustainable environment and provide safety and security at all times.	Access routes to be well defined and promote a sense of ownership, respect and territorial responsibility and community. All critical control equipment will be designed to be secured.	Detailed design of physical protection and security features.	O	Initial: Date:



Pipeline corridor

Table 3-2 - Record of Environmental Actions and Commitments (REAC): Pipeline corridor

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre- construction C - Construction O - Operation A - All	Completion record
Air Quality							
Pipeline AQ1	CH7	To limit and control emissions to air during construction to avoid direct and indirect impacts on Community and ecological receptors.	Works will be carried out in accordance with the Best Practicable Means, as described in Section 79 (9) of the Environmental Protection Act (EPA) 1990, to reduce fumes or emissions which may impact upon air quality. Selected mitigation measures given in the IAQM Construction Dust Guidance which are applicable to high risk construction sites are described below. With appropriate mitigation measures in place, any adverse effects resulting from the construction works would be minimised such that there would not be any significant residual effect on receptors. The Principal Contractor will undertake mitigation measures to address construction dust from the site, taking into account the direct and indirect impacts of site preparation and construction works on residential and business uses, and ecological receptors. Mitigation measures include: Site Management: - Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken; - Make the complaints log available to the local authority when asked; and - Record any exceptional incidents that cause dust and/or air emissions, either on- or off- site, and the action taken to resolve the situation in the log book. Monitoring: - Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked - Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions; and - Agree dust deposition, dust flux, or real-time PM10 continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Preparing and Maintaining the Site: - Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible;	Community and ecological receptors sensitive to dust (IAQM guidance)	Daily Site Audits by a representative from the Principal Contractor	P, C	Initial: Date:

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
			- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site; - Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period; - Avoid site runoff of water or mud; - Keep site fencing, barriers and scaffolding clean using wet methods; - Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below; and - Cover, seed or fence stockpiles to prevent wind whipping. Operating Vehicle/Machinery and Sustainable Travel: - Ensure all vehicles switch off engines when stationary - no idling vehicles; - Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable; and - Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials. Operations: - Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems; - Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate; - Use enclosed chutes and conveyors and covered skips; - Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate; and - Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods. Waste Management: - Avoid bonfires and burning of waste materials.				



Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre- construction C - Construction O - Operation A - All	Completion record
			Measures Specific to Construction: - Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place. Measures Specific to Trackout: - Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use. - Avoid dry sweeping of large areas; - Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport; - Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable; - Record all inspections of haul routes and any subsequent action in a site log book; - Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowzers and regularly cleaned; - Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable);and - Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.				

Historic Environment

Pipeline HE1	CH8	To prevent unintended impacts to St Chad's Well (HER 65094)	Installation of fencing around the asset +5 m buffer to prevent access and unintentional impacts.	No work is required within the immediate vicinity of St Chad's Well	Avoidance of the asset	P, C	Initial: Date:
Pipeline HE2	Ch 8	To identify, evaluate, and record impacts to archaeological remains	Development of an Archaeological Management Plan	The Archaeological Management Plan will include: The potential for prehistoric archaeological remains within the boundaries of the pipeline; The identification and interpretation of remains associated with the value of the Leigh Park RPG and the Sir George Staunton	Production and archiving of report on the findings of works done under the Archaeological Management, including approval from the LPA Archaeologist.	P, C	Initial: Date:

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
				Conservation Area where they may add to the value of these assets.			
Pipeline HE3	Ch8	To ensure the conservation of the Sir George Staunton Conservation Area	Continued consultation with the EHDC / HBC Heritage Manager on designs of the pipeline compound to ensure they are in keeping with the aesthetic and historic character of the conservation area.	All designs for new structures within the conservation area will be in keeping with the character of the conservation area and follow the guidance identified in its published management plan.	Concurrence with the LPA Conservation Officer on the appropriateness of design.	P	Initial: Date:
Biodiversity							
Pipeline B1	CH9	To set out mitigation and compensation for the Pipeline	Develop a detailed Ecological Mitigation and Management Plan (EMMP), to include strategy, responsibility and timing of actions to deliver onsite mitigation and compensation measures for the pipeline.	Stakeholder comments will be obtained from LPA, Natural England, and Environment Agency.	Agreement of EMMP by LPA. Quarterly ECoW progress reports to be provided to LPA during construction.	P, C	Initial: Date:
Pipeline B2	CH9	To assist appointed construction contractor in meeting biodiversity requirements	Ecological Clerk of Works (ECoW) to be appointed, to be full time on site during site preparation and clearance and during any works in sensitive areas, and to undertake regular monitoring visits throughout construction programme.	ECoW to be appointed by contractor will be suitably qualified and experienced ecologist.	Quarterly ECoW progress reports to be provided to the LPA	C	Initial: Date:
Pipeline B3	CH9	To protect areas of SINC's and ancient woodland outside the working areas from accidental incursion	Install protective fencing (high visibility or HERAS) at the edge of the working area, including protecting a 15m buffer zone around all ancient woodlands where practicable, and with expert arboricultural advice where work is required within 15m, and maintain throughout construction.		Integrity of adjacent areas to be monitored on weekly basis by ECoW. Updates to be included in quarterly ECoW progress report to LPA.	C	Initial: Date:
Pipeline B4	CH9	To protect retained trees, including veteran trees, from harm	All mature trees, including veterans, will be protected through appropriate mitigation measures or through the realignment of the route to avoid trees. Where trees have not been recorded they are to be assessed by an arboriculturist to inform on any impacts that could occur from the construction of the pipeline. Protection of retained trees following standard practice (i.e. BS 5837:2012 Trees in relation to design, demolition and construction – recommendations). A construction exclusion zone will be established using steel mesh panel fencing, or similar, around retained trees where works are not limited by the existing roads or other associated hard infrastructure that could be protecting underlying tree roots. The retained veteran trees shall be assessed by an arboriculturist prior to construction to inform on any potential remedial works that maybe required to manage any structural or physiological defect(s) that increase the likelihood of full or partial failure of the tree or tree part within falling distance of the works. This forms part of a duty of care to both people and property laid down in the Occupiers Liability Acts 1957 and 1984, the Highways Act 1980 and	Stakeholder comments will be obtained from LPA and Natural England. Detailed design will protect all mature trees	Agreement of tree protection strategy by LPA. Quarterly ECoW progress reports to be provided to LPA during construction.	P, C	Initial: Date:

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
			Health and Safety at Work Act 1974. Veteran habitat features are often defects, meaning any potential works will be sympathetic, whilst being reasonable in order to manage the risk of harm to people or property				
Pipeline B5	CH9	To ensure habitat is protected and restored within High Lawn and Thicket Lawn SINC	Create and follow a detailed methodology for turf and soil removal, storage and restoration for pipeline installation within the SINCS.	Measures to be set out in EMMP.	Agreement of EMMP by LPA. Updates to be included in quarterly ECoW progress report to LPA.	P, C	Initial: Date:
Pipeline B6	CH9	To protect Great Copse ancient woodland and SINC	During detailed design, set out working area and methods to minimise incursion into the Great Copse SINC and avoid any incursion within the ancient woodland area of the SINC and include measures to protect all mature trees throughout construction and to restore vegetation after works.	Detailed design will protect all mature trees	Agreement of EMMP by LPA. Quarterly ECoW progress reports to be provided to LPA during construction.	P, C	Initial: Date:
Pipeline B7	CH9, CH15	To protect watercourses from construction related pollution risk	The PC will adopt best practice to avoid pollution of watercourses. This is to include, but is not limited to adherence to Guidelines for Pollution Prevention (GPP), latest Environment Agency pollution guidance available from data.gov, and Construction Industry Research and Information Associated (CIRIA) guidance on the control of water pollution from construction sites.	Contractual responsibilities between Portsmouth Water and PC. Pollution prevention measures will be detailed in a CEMP. The PC will have access to relevant guidance material.	No reportable incidents of construction related watercourse pollution above thresholds set within the water quality monitoring strategy.	P, C	Initial: Date:
Pipeline B8	CH9	Protection of existing fish populations	During watercourse de-watering activities (pipeline watercourse crossings on Riders Lane Stream, Hermitage Stream and Lake Stream) appropriately screened pumping equipment will be deployed to reduce risk of fish entrainment. Particular care should be taken to remove European eel (a critically endangered species) from soft sediments and culverts.	Construction of the pipeline crossing will require de-watering and over pumping of existing watercourse lengths. Approaches to prevent harm to fish will be required as part of the Flood Risk Activity Permits / best practice.	No harm to fish during de-watering activities. Quarterly ECoW progress reports to be provided to LPA during construction.	P, C	Initial: Date:
Pipeline B9	CH9	Protection of existing fish populations	Development of a fish management plan which may require the removal of fish from any sections of channel requiring de-watering.	Construction of the pipeline crossing will require de-watering and over pumping of existing watercourse lengths. Approaches to prevent harm to fish will be required as part of the Flood Risk Activity Permits / best practice. Any fish removal will need to be undertaken with regard to Environment	No harm to fish during any removal process. Quarterly ECoW progress reports to be provided to LPA during construction. Detail of fish removal/translocation reported within Environment Agency	P, C	Initial: Date:

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
				Agency FR2 consenting requirements.	FR2 consenting process.		
Pipeline B10	CH9, CH15	Protection of retained watercourses and associated flora and fauna	Silt control measures to be applied to control siltation risks associated with de-watering activities and construction related discharges.	There will be a requirement to manage potential of silt propagation within watercourse channels associated with in-channel working. Required as part of Flood Risk Activity Permits.	No reportable incidents of construction related watercourse pollution above thresholds set within the water quality monitoring strategy. Quarterly ECoW progress reports to be provided to LPA during construction.	P, C	Initial: Date:
Pipeline B11	CH9, CH15	Watercourse mitigation and compensation	Develop and implement a Watercourse Mitigation and Compensation Strategy, to include details of measures, responsibility and timing of actions and objectives to deliver onsite and offsite mitigation and compensation. Implement watercourse enhancements at the three pipeline watercourse crossings. Reinstatement of riparian zones (e.g. bank profiles and/or vegetation cover) following disturbance from construction associated with pipeline crossings and culvert upgrades.	Stakeholder comments will be obtained from LPA and Environment Agency.	Agreement of Watercourse Mitigation and Compensation Strategy by statutory authorities. Mitigations and compensation meet objectives within the timescales set out within the Watercourse Mitigation and Compensation Strategy.	A	Initial: Date:
Pipeline B12	CH9, CH15	To provide embedded mitigation within culvert design	New culvert will be designed in such a way as to maintain as far as practically possible hydrological and ecological connectivity within the system.	Requirement to maintain ecological connectivity within the system.	Implemented as designed.	P, C	Initial: Date:
Pipeline B13	CH9	Protection of bats from indirect harm	Mitigation will be provided for lighting during construction. Any temporary lighting required during construction will be designed to minimise light spill, and to avoid light spill of more than 0.5 Lux on retained woodland areas.		If temporary lighting is required, updates will be included in ECoW's quarterly progress reports to be provided to LPA during construction.	P, C, O	
Pipeline B14	CH9	Protection of otters	Precautionary pre-clearance survey will be undertaken at watercourses and areas of scrub and woodland linked to watercourses. Vegetation clearance in these areas will follow Precautionary Method of Working. Light spill on watercourses will be avoided.	Further mitigation to be agreed with LPA if evidence of otters is found.	Quarterly ECoW progress reports to	P, C	

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
					be provided to LPA during construction.		
Pipeline B15	CH9	Protection of water voles	Precautionary pre-clearance survey will be undertaken at watercourses. Vegetation clearance in these areas will follow Precautionary Method of Working. Vegetation restoration will be designed to provide suitable habitat for water voles.	Further mitigation to be agreed with LPA if evidence of water voles is found.	Quarterly ECoW progress reports to be provided to LPA during construction.	P, C	
Pipeline B16	CH9	Protection of badgers	Precautionary pre-clearance survey will be undertaken at areas of suitable habitat. Vegetation clearance in these areas will follow Precautionary Method of Working.	A licence will be obtained if badgers colonise the site and a sett requires closure.	Quarterly ECoW progress reports to be provided to LPA during construction.	P, C	
Pipeline B17	CH9	Protection of nesting birds	Precautionary pre-clearance survey will be undertaken at areas of suitable habitat if clearance is required in the nesting season (typically March to August). Vegetation clearance in these areas will follow Precautionary Method of Working.		Quarterly ECoW progress reports to be provided to LPA during construction.	P, C	
Pipeline B18	CH9	Protection of reptiles	Retained vegetation will be protected for use as receptor sites. Clearance of suitable habitat will follow a Precautionary Method of Works. This is likely to involve displacement of animals into retained adjacent retained habitat. The PMW will set out the season and method of clearance.		Quarterly ECoW progress reports to be provided to LPA during construction.		
Pipeline B19	CH9	Avoid spread of invasive non-native species	CEMP will include detailed methods to minimise risks of spreading invasive non-native species by managing risks and removing them.		Agreement of CEMP by LPA. Agreement of detailed wetland design by LPA.	P, C	
Pipeline B20	CH9	Monitor works to inform adaptive management	EMMP will set out monitoring requirements. These will include habitat monitoring to inform management decisions for the restored grassland in the High Lawn and Thicket Lawn SINC's during the maintenance period.		Agreement of EMMP by LPA.	P, C, O	
Pipeline B21	CH9	To report as required under licences.	Monitoring requirements will be met, as set out in the dormouse licence.		Reports to be provided to Natural England and copied to LPA.	P, C, O	
Ground conditions							
Pipeline GC1	CH 10	To prevent injury/death to on-site human health receptors and/or damage to property receptors associated	Principal Contractor to undertake further assessment of potential UXO risks to determine the requirement for the implementation of UXO mitigation measures. Mitigation measures to be implemented as appropriate in the CEMP, Health and Safety File, Construction Phase Plan, RAMS, Emergency Response Plan and HEMP.	Zetica UXO risk maps have identified the potential risk of encountering UXO within the southern section of the site as 'moderate'.	Mitigation measures to be included within the CEMP, Health and Safety File, Construction Phase	A	Initial: Date:

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
		with potential discovery of UXO.			Plan, RAMS, Emergency Response Plan and HEMP as appropriate. All required mitigation measures to be implemented during the construction phase. Residual risks to be managed as appropriate through the operational phase.		
Pipeline GC2	CH 10	To prevent adverse risks to on-site and off-site human health, controlled waters, property and ecological receptors from the potential disturbance/mobilisation of existing contaminated soil or groundwater and/or introduction of new sources of contamination (i.e. from spillages and leaks) during construction works.	Further assessment of the ground conditions underlying the Scheme to be undertaken through ground investigation, as required. Remediation of soil/groundwater contamination if further investigation and risk assessments deem necessary. Principal Contractor to undertake works in accordance with the CDM Regulations 2015 and appropriate guidelines and best practice. Principal Contractor to prepare a CEMP to include (but not limited to) the following mitigation measures: • Health and safety RAMS and appropriate PPE to be implemented for the protection of construction workers in accordance with the COSHH Regulations 2002 (as amended); • Minimising the area and duration of soil exposure and timely reinstatement of vegetation or hardstanding to prevent soil erosion; • Stockpile management (such as water spraying and covering) to reduce windblown dust and surface water run-off; • Clear segregation between stockpiled material including imported material, excavated material stockpiled for re-use and excavated waste material stockpiled for treatment and / or off-site disposal; • Implementation of appropriate dust suppression measures to prevent migration of contaminated dust as required; • Implementation of working methods during earthworks to manage groundwater and surface water appropriately and ensure that there is no uncontrolled run-off from the works, any material / waste stockpiles, and storage containers into adjacent surface watercourses;	Potential on-site and off-site sources of contamination and potential contamination linkages (PCLs) have been identified for the site which require further investigation and assessment to characterise potential risks. Potential short-term exposure (acute risk) to construction workers should be assessed by the Principal Contractor and managed through the application of suitable health and safety assessments and working methods. There is the potential for unforeseen contamination to be encountered during earthworks. In addition, there is the potential for introducing new sources of contamination (i.e. from spillages and leaks) during construction works.	Further assessment of the ground conditions to be completed as appropriate. Remediation of soil/groundwater contamination to be undertaken if required. Preparation of reports as required (e.g. GQRA, remediation strategy and/or Verification Plan) for submission to and approval by the Local Authority prior to the commencement of construction. Mitigation measures to be included within the CEMP, Health and Safety File, Construction Phase Plan, RAMS and Emergency Response Plan as appropriate. All required mitigation	P, C	Initial: Date:

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
			- Implementation of appropriate and safe storage of fuel, oils and equipment during construction in accordance with the COSHH Regulations; - Implementation of appropriate pollution incident control e.g. plant drip trays and spill kits; - Implementation of an appropriate Materials Management Plan (MMP) to document how excavated materials will be managed; and - Implementation of a contamination watching brief by suitably qualified and experienced personnel to be completed for the Scheme when excavating areas of potential contamination risk. If unidentified contamination is encountered, works to be suspended in the area and appropriate investigations and remediation to be discussed and agreed with stakeholders and completed in accordance with current best practice. Mitigation measures to be implemented as appropriate in the CEMP, Health and Safety File, Construction Phase Plan, RAMS and Emergency Response Plan.		measures to be implemented during the construction phase.		
Pipeline GC3	CH 10	To prevent adverse risks to on-site and off-site human health, controlled waters and ecological receptors during the operational phase associated with the potential introduction of new sources of contamination.	Principal Designer to incorporate mitigation/remedial measures in the design of the Scheme to reduce impacts from contamination as required. The Scheme will be operated in accordance with the relevant regulations and best practice guidance in applying Best Available Techniques and pollution prevention. Mitigation measures to be implemented as appropriate in the HEMP.	The operation of the Scheme could potentially introduce new sources of contamination. Spillages and leaks may occur from machinery, and below ground services and leakage from the reservoir could create additional potential pathways for the migration of potential contamination.	The 'as constructed' Scheme is in accordance with the submitted design and planning applications. Mitigation measures to be included within HEMP as appropriate. Risks to be managed as appropriate through the operational phase.	O	Initial: Date:
Pipeline GC4	CH 10	To maximise the use of site-won materials in the construction of the Scheme and reduce amount of soils disposed off-site.	Further assessment of the ground conditions underlying the Scheme to be undertaken through ground investigation to provide information for soil re-use, as required. Principal Designer to seek as far as reasonably practicable, to reduce the amount of soil/materials excavated and/or of a hazardous nature, to re-use and recycle waste soils/materials on-site, where possible and to promote sustainable waste and material resource management. Principal Contractor to construct the Scheme in accordance with the submitted design and planning applications.	Waste soils/materials would be generated during construction through earthworks and foundation installation.	Further assessment of the ground conditions to be completed as appropriate. Requirement for re-use of site-won materials to be included in the detailed design. The 'as constructed' Scheme is in accordance with the submitted design and	P, C	Initial: Date:

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
					planning applications.		
Pipeline GC5	CH 10	To effectively manage the re-use of waste soils/materials across the Scheme during construction.	Further assessment of the ground conditions underlying the Scheme to be undertaken through ground investigation to provide information for soil re-use, as required. Principal Contractor to prepare and implement an appropriate MMP in accordance with the CL:AIRE Definition of Waste: Development Industry Code of Practice and to promote sustainable waste and material resource management in line with the Government's waste hierarchy to allow the re-use of suitable soils during the construction works. Management measures to be implemented as appropriate in the CEMP.	Waste soils/materials would be generated during construction through earthworks.	Further assessment of the ground conditions to be completed as appropriate. Principal Contractor to prepare an MMP and a Verification Report to document the re-use of excavated materials. Soil management measures to be included within the CEMP.	P, C	Initial: Date:
Pipeline GC6	CH 10	To reduce soil erosion and compaction during construction works.	Principal Contractor to prepare a CEMP to include (but not limited to) the following mitigation measures: - Minimising the area and duration of soil exposure and timely reinstatement of vegetation or hardstanding to prevent soil erosion and reduce temporary effects on soil compaction; - Stockpile management (such as water spraying and avoiding over stockpiling to reduce compaction of soil and loss of integrity) to reduce soil erosion, windblown dust and surface water run-off; - Implementation of appropriate dust suppression measures to prevent soil erosion; - Implementation of working methods during earthworks to ensure that there is no uncontrolled run-off from the material / waste stockpiles; and Implementation of an appropriate MMP to document how excavated materials will be managed.	Earthworks will be required for the construction of the Scheme which may result in soil erosion and soil compaction.	Mitigation measures to be included within the CEMP and implemented during the construction works.	P, C	Initial: Date:
Pipeline GC7	CH 10	To reduce ground stability hazards and protect structures from compaction/ settlement.	Further assessment of the ground conditions underlying the Scheme to be undertaken through ground investigation, as required. Principal Designer to incorporate geotechnical mitigation/remedial measures in the design to reduce impacts from ground instability and soil compaction/ settlement as required. Principal Contractor to construct the Scheme in accordance with the submitted design and planning applications.	Requirement for mitigation/remedial measures to be determined based on further assessment of ground conditions as part of detailed design.	Further assessment of the ground conditions to be completed as appropriate. Mitigation/remedial measures to be included in the detailed design.	A	Initial: Date:

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
			The Scheme will be operated in accordance with the relevant regulations and best practice guidance in applying Best Available Techniques.		The 'as constructed' Scheme is in accordance with the submitted design and planning applications.		
Landscape and visual							
Pipeline LV1	CH11	Limit damage to existing trees, shrubs, hedges and other significant vegetation to be retained on site.	An Arboricultural Impact Assessment (AIA) and Arboricultural Method Statement (AMS) will be required, this is to be updated /produced alongside the detailed design stages of The Scheme. It should define the requirements and methods to be used to ensure protection in the construction period. All tree root protection areas identified, shall be protected by protection fencing in accordance with BS 5837:2012.		Mitigation measures to be included in the CEMP. Protection to be reviewed and monitored on site an Arboricultrist or ECoW.	P, C	Initial: Date:
Pipeline LV2	CH11	Limit damage to existing trees, shrubs, hedges and other significant vegetation to be retained.	The layout and construction of site compounds, soil storage areas, haul routes and any other construction site requirements to be designed and planned to ensure minimal impact on existing vegetation to be retained. Allow appropriate clearance from the edge of retained vegetation to minimise the requirement for cutting back or tree surgery. Requirements of which should be agreed with an Arboricultrist or ECoW.		Mitigation measures to be included in the CEMP.	P, C	Initial: Date:
Pipeline LV3	CH11	Limit damage to existing trees, shrubs, hedges and other significant vegetation to be retained.	Where the pipeline corridor crosses an existing hedge, area of scrub or tree belt, existing gaps will be used where possible so that vegetation removal is minimised. No unnecessary tree or shrub removal will be undertaken, and vegetation which is to be removed will be marked and agreed on site with the ECoW prior to any felling.		Mitigation measures to be included in the CEMP. Vegetation to be removed to be agreed on site with ECoW.	P, C	Initial: Date:
Pipeline LV4	CH11	Limit damage to existing vegetation and grassland areas	A working area will be defined and agreed before construction commences. The area is to be marked on site by fencing with agreed access points. No works, vehicular access or storage will be permitted outside of the agreed working area. The working area is to be agreed and monitored by the ECoW.		Mitigation measures to be included in the CEMP. Working area to be agreed preconstruction and monitored on site by the ECoW.	P, C	Initial: Date:
Pipeline LV5	CH11	Reinstatement of landscape disturbed by the works.	The creation of a Restoration Plan is to be carried out in the detailed design stages of the Scheme. This will be implemented to restore all landscape areas affected by the construction works. To be monitored and inspected on site.		Mitigation measures to be included in the CEMP.	P, C	Initial: Date:
Pipeline LV6	CH11	Reinstatement of landscape disturbed by the works.	A Soil Management Plan will be developed within the detailed design stages and its recommendations implemented on site. This should include methodology for stripping, storage, de-compacting, backfilling, re-spreading, cultivation, amelioration and reuse of all existing topsoil and subsoil. The plan should be monitored on site by a Soil Scientist to		Mitigation measures to be included in the CEMP.	P, C	Initial: Date:

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
			ensure ground preparation, soil handling and cultivation is correctly carried out and soils are not compacted				
Pipeline LV7	CH11	Reinstatement of landscape disturbed by the works.	Operations should be designed so that they can be progressively restored as the works commence. Areas will be reinstated as soon as the section /phase of works is complete, to minimise and reduce effect on visual amenity.		Mitigation measures to be included in the CEMP.	P, C	Initial: Date:
Pipeline LV8	CH11	Reinstatement of landscape disturbed by the works	Where removal of sections of scrub, hedgerows and trees are unavoidable, appropriate tree and hedge species will be replanted along the line of the existing hedge or within the area of scrub. These will be managed to restore the area to its pre-construction state.		Mitigation measures to be included in the CEMP.	P, C	Initial: Date:
Pipeline LV9	CH11	Implementation of mitigation planting and seeding.	Ensure mitigation planting is implemented to provide enhancement and replacement of landscape and habitats, as well as integrating The Scheme into its surroundings and providing screening functions. Planting plans to be prepared in coordination with the Biodiversity requirements. Implementation is to be monitored and inspected on site.		Mitigation measures to be included in the CEMP.	P, C	Initial: Date:
Pipeline LV10	CH11	Implementation of mitigation planting and seeding.	Mitigation planting and seeding is to be implemented in advance or as soon as possible following completion of each area, section or phase of works. This is to ensure any temporary period of effects is reduced and mitigation planting has longer to establish before completion of the works. A strategy for advance and phased mitigation planting / landscape reinstatement should be developed in the detail design stage. The strategy should be reviewed within the construction period and updated regularly to take advantage of any areas where the programme of planting works can be brought forward.		Mitigation measures to be included in the CEMP. Strategy of advance planting to be agreed preconstruction and reviewed throughout the construction period.	P, C	Initial: Date:
Pipeline LV11	CH11	Successful establishment of mitigation planting and seeding.	A five-year aftercare period for all soft landscape is to be included within the construction contract to ensure successful establishment. Maintenance within the period to be carried in accordance with an agreed management plan, maintenance specification and maintenance schedule to be developed and agreed in the detailed design stages. Records of all maintenance actions to be kept by the contractor /management company and provided for regular inspection when requested. Regular inspection and site monitoring to be undertaken throughout the period to ensure establishment targets are being achieved.		Mitigation measures to be included in the CEMP. Management Plan, maintenance specification and schedules to be agreed and put in place preconstruction. Regular inspection and site monitoring to be undertaken throughout the construction period.	C, O	Initial: Date:
Noise and vibration							
Pipeline NV1	CH12	To limit and control noise emissions during construction to avoid direct and indirect impacts on Community and receptors.	Works will be carried out in accordance with the Best Practicable Means, as defined in Section 72 of the Control of Pollution Act 1974 and Section 79 of the Environment Protection Act 1990, and noise control measures, as suggested by BS 5228 Part 1 Only plant which complies with the relevant EU/UK noise limits applicable to that equipment or is in no way noisier than would be expected from the noise levels quoted in BS 5228: 2009+A1:2014 Part 1 will be used. This would include all vehicles and mechanical plant used	To minimise the emission of noise from the site	Specification of plant noise level	P, C	Initial: Date:

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
			for the purpose of the works to be fitted with effective exhaust silencers and maintained in good and efficient working order; All compressors and generators should be 'sound reduced' models fitted with properly lined and sealed acoustic covers which should be kept closed whenever the machines are in use, and all ancillary pneumatic percussive tools should be fitted with mufflers or suppressers of the type recommended by the manufacturers and should be kept in a good state of repair; Machines in intermittent use should be shut down in the intervening periods between work, or where this is impracticable, throttled down to a minimum; Where practicable, plant with directional noise characteristics should be positioned so as to minimise noise at adjacent properties; The works covered by this application will be planned so as to ensure that as much work as practicable (taking into account the needs to minimise disruption to trains when the pipeline crosses the rail line and ensuring the safety of the public and workforce) takes place during normal daytime working hours; Ensuring that all staff and operatives are briefed on the requirement to minimise nuisance from site activities, via tool box talks etc.; Regular plant maintenance; all plant and equipment should be examined daily, for defects prior to the start of works and under no circumstances should defective plant be used; Avoid any reversing on site as far as reasonably practicable – if reversing is required, utilise broadband low impact reversing alarms or banksmen.				
Pipeline NV2	CH12	To limit and control noise emissions during construction to avoid direct and indirect impacts on Community and ecological receptors.	Use of temporary noise screens or partial enclosures around particularly noisy activities, for example pneumatic breakers used in close proximity to dwellings	Current assessment shows potential for significant night time impacts at receptors on Swanmore Road.	Specification of noise barriers and input to CEMP	P, C	Initial: Date:
Pipeline NV3	CH12	Avoid night-time impacts	Avoid night-time works where possible, particularly in proximity to receptors on Swanmore Road. Where night-time works cannot be avoided, acoustic screens should be erected to block line-of-sight between the plant and receptor to minimise impacts	Current assessment shows potential for significant night time impacts at receptors on Swanmore Road.	Input to CEMP	P, C	Initial: Date:
Pipeline NV4	CH12	Reassess Noise and Vibration Impacts	Reassess noise and vibration impacts once method of working, plant and programme have been agreed	Current assessment shows potential for significant impacts	New assessment	P	Initial: Date:
Pipeline NV5	CH12	Undertake building surveys	Agree thresholds for vibration levels and durations of works with the local authority and determine if undertaking building surveys before and after works generating vibration in close proximity to sensitive receptors is appropriate	Current assessment shows potential for significant vibration impacts when works are very close to receptors	Ensure works do not cause cosmetic building damage	P, C	Initial: Date:
Pipeline NV6	CH12	Noise and vibration monitoring	Undertake targeted monitoring of noise and vibration levels when works are in close proximity to sensitive receptors. Frequency and locations to be agreed with local authority	Ensure works do not cause significant noise or vibration impacts	Report measured levels to the local	C	Initial: Date:

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
					authority within an agreed timeframe		
Pipeline NV7	CH12	To limit and control noise emissions during construction to avoid direct and indirect impacts on Community and ecological receptors.	Agree thresholds for noise levels and durations of works with the local authority above which noise insulation or temporary rehousing will be offered to affected residents	Current assessment shows potential for significant impacts at receptors, dependant on duration of works	Input to CEMP	P	
Traffic and transport							
Pipeline TT1	CH13	Minimise impact of HGV traffic on highway network.	Prepare a Construction Traffic Management Plan to manage the impact of HGV traffic on the highway network.	Impacts on local road network from HGV traffic.	New report to be included within CEMP	P	Initial: Date:
Pipeline TT2	CH13	Minimise impact of construction traffic during typical network peak hours	Manage hours of working to avoid the import or export of goods and materials to avoid network peak hours.	Impacts on local road network from HGV traffic.	To be included within CTMP	P, C	Initial: Date:
Pipeline TT3	CH13	Minimise use of construction routes on local roads.	Utilise the Strategic Road Network where possible for the import and export of goods and materials.	Impacts on local road network from HGV traffic.	To be included within CTMP	P, C	Initial: Date:
Pipeline TT4	CH13	Minimise use of construction routes on local roads.	Utilise the northern access where practicable for the import and export of goods and materials.	Impacts on local road network from HGV traffic.	To be included within CTMP	P, C	Initial: Date:
Pipeline TT5	CH13	Minimise the impact of construction traffic and road closures / diversions.	Develop construction sequencing plan with Local Highway Authority to reduce impact of closures.	Impact on local roads during construction of pipeline.	To be included within CTMP	P, C	Initial: Date:
Pipeline TT6	CH13	Minimise the impact of PRow closure / diversion.	Develop alternative routeing strategy for PRow	It is assumed that significant effects relating to PRow closure would be unacceptable, as there appears to be mitigation that can be achieved to prevent this.	To be included within CTMP	P, C	Initial: Date:
Pipeline TT7	CH13	Minimise staff car trips	Use mini-bus / shuttle bus to transport staff to and from pipeline from welfare facilities.	To minimise the need for welfare facilities on pipeline route.	To be included within CTMP	P, C	Initial: Date:

Material resources and waste

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
Pipeline MRW1	CH14	To maximise the use of site-won materials in construction.	Design Team to continue to develop the design considering resource efficiency and based on the majority of earthworks materials being sourced from the reservoir site. Principal Contractor to implement the Scheme as set out in the design and planning applications.	The earthworks materials required for construction are available within the Scheme's boundary. The assessment in the Environmental Statement assumes earthworks materials will be sourced from the reservoir site for use in construction of the embankments, wetland retention structure and clay blanket.	Statement from Design Team stating quantity of earthworks materials required to construct the Scheme and quantity of earthworks materials sourced from site-won materials. The Scheme 'as constructed' is in accordance with the submitted design and planning applications.	P, C	Initial: Date:
Pipeline MRW2	CH14	To manage wastes effectively in accordance with the waste hierarchy and waste regulations.	Principal Contractor to produce a Site Waste Management Plan (SWMP) with planned waste management for forecast wastes and monitoring of actual waste management during construction including the waste codes, quantities and destination of wastes removed from the site.	N/A	The Principal Contractor's SWMP will act as the record of waste management and can be used for reporting to the Local Authority, as required. A record of Waste Transfer Notes (WTNs) and Hazardous Waste Consignment Notes (HWCNs) will also need to be kept for a minimum of two and three years respectively.	P, C	Initial: Date:
Pipeline MRW3	CH14	To effectively reuse excavated materials across the Scheme.	Principal Contractor to consult with the Environment Agency regarding proposed approach to reuse of excavated materials, as set out in the Materials Management Strategy (ref. HTR-ATK-ZZ-ZZ-RP-Z-0139), and produce a Materials Management Plan (MMP) in accordance with CL:AIRE Definition of Waste: Development Industry Code of Practice.	This is the preferred approach for reuse of excavated materials on-site. Subject to agreement from Environment Agency and Local Authority on approach to materials management.	Reporting requirements set out in CL:AIRE Definition of Waste: Development Industry Code of Practice. This includes the requirement to produce a Verification Report following use of excavated materials.	P, C	Initial: Date:

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
Pipeline MRW4	CH14	To minimise construction and demolition waste disposed of at landfill.	Aim to recover 95% by weight of non-hazardous construction and demolition waste in accordance with the Hampshire Minerals and Waste Plan 2013. This action will be monitored through the SWMP.	Target does not include excavation materials (i.e. 17 05 04) or hazardous wastes.	Performance and reporting will be through the Principal Contractor's SWMP.	C	Initial: Date:
Pipeline MRW5	CH14	To ensure vegetation and wood and timber arising from construction is managed effectively.	Principal Contractor to develop a strategy for managing vegetation, wood and timber in accordance with the waste hierarchy. The strategy will need to identify how timber will be graded, processed and stored to maintain its quality. Opportunities to reuse the timber within the Scheme or interested third parties will need to be explored.	Principal Contractor is responsible for management of stripped vegetation and wood and timber arising from unavoidable woodland loss.	Management of wastes will be reported through the Principal Contractor's SWMP.	P, C	Initial: Date:

Water environment

Pipeline W1	CH9, CH15	To protect watercourses and groundwater from construction related pollution risk	See pollution prevention, drainage management and environmental monitoring requirements specified in items W1-3 in Table 3-1. In addition, particular care will need to be taken with pipeline excavations at the southern end of the pipeline corridor where shallow groundwater in the South Hants Lambeth Group groundwater body and artesian Chalk groundwater from the East Hants Chalk groundwater body may be encountered. Trench excavations and any shafts will need to be designed in accordance with industry standards. A risk assessment will need to be carried out to ensure the selected excavation method does not introduce contamination pathways into the aquifer. The design will include a contingency plan in the event that artesian groundwater flow is encountered. In context of a sensitive Secondary A and Principal Aquifer used for drinking water, construction and operational discharges to groundwater will be avoided. For access roads, road runoff drainage systems will be designed to minimise runoff soakaway drainage to ground and pollution control measures will be installed on all access roads	Contractual responsibilities between Portsmouth Water and PC. Pollution prevention measures will be detailed in a CEMP. The PC will have access to relevant guidance material.	No reportable incidents of construction related watercourse pollution above thresholds set within the water quality monitoring strategy.	P, C	Initial: Date:
Pipeline W2	CH9, 15	To protect watercourses from construction related pollution risk	In-river construction work will avoid periods of higher flows i.e. outside of March to September periods. Construction will be undertaken when flows are at or below the mean average as far as practicable to reduce the potential for sediment release and risk of scour and using appropriate methods to reduce the risk of pollution if flows were to increase suddenly. There will be no storage/stockpiling of fuels earth, gravel or other materials that may cause pollution within the pipeline corridor. All soils/materials excavated within the pipeline corridor are directly placed into a vehicle and taken away for offsite storage.	Contractual responsibilities between Portsmouth Water and PC. This measure will be detailed in the CEMP.	No reportable incidents of construction related watercourse pollution above thresholds set within the water quality monitoring strategy.	C	Initial: Date:
Pipeline W3	CH9, CH15	To improve river habitat connectivity in line with WFD waterbody objectives	The following measures will be undertaken as part of pipeline corridor crossings: Flow will be maintained for downstream habitats through a flume/overpumping during the in-river works. The riverbed at the location of pipeline corridor crossings will be restored using finer materials (gravel, pebbles, cobbles) which will be placed on top of the concrete seals Noise, vibration and light spill will be minimised by working back from the watercourses where possible. Construction lighting will be angled away from the watercourse to reduce the potential for disturbance. Where practicably possible percussive (hammer) piling shall be avoided in favour of softer alternatives (e.g. silent sheet piling, vibratory sheet piling). Where this is not possible, soft	Contractual responsibilities between Portsmouth Water and PC. This measure will be detailed in the CEMP.	Agreement with the Environment Agency.	C	Initial: Date:

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
			start piling procedures will be utilised to provide time for fish to locate away from the source of disturbance prior to full exposure. It is advised that the soft-start duration should be a period of not less than 20 minutes. All piling activities should ideally be of a period no greater than 20 minutes. Following the cessation of piling activities, the soft start procedure should be repeated.				
Pipeline W4	CH9, CH15	To maintain / improve habitat connectivity	The following measures will be undertaken as part of pipeline culvert upgrades: The following measures will be undertaken as part of pipeline corridor crossings: An inverted entry/exit will be implemented to new culvert pipes along with the installation of soft habitats within the pipe to improve watercourse connectivity. As set out in BX in Table Y above, additional backwater habitats will be created in Riders Lane Stream to serve as refugia for fish in case of operational drawdown events.	Contractual responsibilities between Portsmouth Water and PC. This measure will be detailed in the Outline Biodiversity Mitigation and Compensation Strategy	Agreement with the Environment Agency.	C	Initial: Date:
Pipeline W5	CH15	To protect river geomorphology	Riverbanks are not to be re-profiled and any bank damage resulting directly or indirectly from the works is to be repaired so as to restore it to its former condition. This includes stabilisation replanting of riparian vegetation to prevent soil run-off and erosion. Any temporary works to be placed in the watercourse or within 8m metres of the bank of the watercourse shall be also entirely removed on completion of the works.	Contractual responsibilities between Portsmouth Water and PC. This measure will be detailed in the CEMP.	Agreement with the Environment Agency.	C	Initial: Date:
Pipeline W5	CH15	To protect river geomorphology	The structure containing the Emergency Discharge Valve will not exceed 10 x 15m in size. The design will not compromise the Hermitage Stream reach upstream of Riders Lane Stream, which has already been restored and since naturalised. The pipeline corridor width will not exceed 20 m. The extent of riverbank affected by riparian vegetation clearance is up to 10 m, with replanting undertaken.	Contractual responsibilities between Portsmouth Water and PC. This measure will be detailed in the CEMP.	Agreement with the Environment Agency.	C	Initial: Date:
Effects on climate							
Pipeline EC1	CH16	To reduce greenhouse gas emissions associated with the production and transportation of materials	Materials will be sourced onsite as far as possible. Where this is not possible, local materials will be used.		Statement from Design Team stating quantity of materials required to construct the Scheme and quantity of materials sourced from site-won materials. The Scheme 'as constructed' is in accordance with the submitted design and planning applications.	P, C	Initial: Date:
Vulnerability to climate change							
Pipeline VCC1	CH17	Avoid and reduce impacts from flooding brought about by	Follow actions and commitments set out in FRA to avoid flooding brought about by extreme rain or during wetter winters (to be implemented by the drainage strategy plan, construction environment management plan and flood risk activity permits).			A	Initial: Date:

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
		extreme weather or during wetter winters.					
Population and human health							
Pipeline PHH1	CH18	To maintain active travel and safe access to open space, opportunities for recreation & leisure, healthcare, education & other social infrastructure and to work & training	Retain existing pedestrian accesses where possible. Maintain safe access through traffic marshalling, traffic management and use of fencing to separate the public from construction activity and traffic.	N/A	No harm to anyone. Daily site audits by a representative from the Principal Contractor. Measures to be included within CTMP to be agreed by LPA.	C	Initial: Date:
Pipeline PHH2	CH18	To minimise the adverse effect on active travel and on access to open space, access to opportunities for recreation & leisure and access to work & training.	Keep the public informed on project progress and on the timing and extent of road/footpath/PROW/amenity spaces closures/diversions	N/A	Measures to be included within CTMP to be agreed by LPA	C	Initial: Date:
Pipeline PHH3	CH18	Access to open space and to opportunities for recreation and leisure	Keep amenity spaces open to the public where possible and minimise the time required to occupy amenity space.	N/A	Development to be implemented in accordance with a construction phasing plan to be agreed by the LPA.	C	Initial: Date:
Pipeline PHH4	CH18	To minimise the adverse effect on active travel and safe access to open space, to opportunities for recreation & leisure and to work & training	Carefully programme the work on pipeline road crossings and on culvert upgrades to minimise the impact of road closures and traffic management.	There is flexibility in the programme to undertake works outside of the peak hours	Measures to be included within CTMP to be agreed by LPA	C	Initial: Date:
Pipeline PHH5	CH18	To minimise the adverse effect on active travel and safe access to open space, to opportunities for recreation & leisure and to work & training	Construction vehicles should only use junctions 3, 4 and 5 of A3(M) and suitable designated routes unless directly accessing the works	N/A	Measures to be included within CTMP to be agreed by LPA	C	Initial: Date:
Pipeline PHH6	CH18	To minimise adverse effect on access to education	Provide alternative parking at Bidbury School	A suitable location for temporary parking can be found	Development to be implemented in accordance with a	C	Initial: Date:

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre-construction C - Construction O - Operation A - All	Completion record
					scheme to be agreed by the LPA.		
Pipeline PHH7	CH18	Minimise the adverse effect from noise pollution and vibration	Keep the public and residents fully informed of the scale, nature and timing of the works	N/A	No noise complaints. Mitigation to be included in CEMP to be approved by LPA	C	Initial: Date:
Pipeline PHH8	CH18	To enhance access to work and training for local communities, the unemployed and low-income groups.	Identify opportunities to provide work and training	Portsmouth Water will engage with local agencies to maximise potential work and training opportunities during construction and operation of the Scheme.	Development is implemented in accordance with a scheme approved by the LPA.	C, O	Initial: Date:
Major accidents and disasters							
Pipeline AD1	CH20	To reduce risk of road accidents due to pipe leaks causing erosion of sediment or backfill, resulting in settlement.	Quality control of pipe connections by appointed contractor. Suitable pipe material selection for ground conditions and construction methods.	Appropriate pipe lining and coating (internal and external) to prevent premature erosion of pipe to be used.	No road accidents due to pipe leakage. Implementation of quality control by appointed contractor.	C, O	Initial: Date:
Pipeline AD2	CH20	To reduce risk of rail accidents due to pipeline crossing.	A detailed GI will be undertaken to inform design and construction of Under Track Crossing (UTX).	Full compliance with Network Rail's asset protection standards and guidance. Network Rail approved Principle Contractor to be appointed.	Outcome of GI to inform detailed design and construction of the UTX.	P, C	Initial: Date:
Pipeline AD3	CH20	To reduce risk of loss of control of flows into the pipeline from a pipe burst creating pressure waves upstream and flooding.	Monitoring system and telemetry connection to allow remote actuation of valves at reservoir will be implemented.	Valves in pipeline at reservoir outlet culvert to be automatically self-closing to prevent loss of control of flows Double isolation at Hermitage stream discharge point Reservoir valve actuators will have Uninterrupted Power Supply (UPS) power, provided from a battery in the control house,	Successful implementation of monitoring systems.	O	Initial: Date:

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P - Pre- construction C - Construction O - Operation A - All	Completion record
				and will be manually operable.			

4. Consents and permissions

Arrangements

- 4.1. The PC will ensure all permits, consents and licences are in place prior to commencement of construction. Portsmouth Water have overall responsibility for the permissions applicable to the project. The PC is required to obtain, implement and comply with all permits, consents and licences during the construction phase. The PC will manage submissions and approval of all the required consents, permits and licences prior to commencement of the relevant site works. Table 4-1 will list the anticipated consents and licences which will be reviewed and updated, as required, as the project progresses.

Reservoir Site

Table 4-1 - Permits, consents and licences: reservoir site

Type of permit, consent, licence and reference	Owner	Issuing authority	Requirement	Summary of condition
Natural England European Protected Species licence - dormice				
Natural England European Protected Species licence - bats				
Environment Agency – Environmental Permits for dewatering activities				
Environment Agency – Flood Risk Activity Permit for working near water				
Street Works license				
Section 278 legal agreement				

Pipeline corridor

Table 4-2 - Permits, consents and licences: Pipeline

Type of permit, consent, licence and reference	Owner	Issuing authority	Requirement	Summary of condition
Natural England European Protected Species licence - dormice				
Environment Agency – Environmental Permits for dewatering activities				
Environment Agency – Flood Risk Activity Permit for working near water				
Environment Agency – FR2 Consent for fish movements				
Street Works license				
Section 278 legal agreement				

5. Environmental monitoring requirements and procedures to monitor compliance

Environmental monitoring requirements

- 5.1. This section lists systems of recording and inspections that will be required to maintain an audit trail of the environmental obligations of the Scheme. This will be managed through the PC's Quality and Safety Management Systems (QMS) and the Environmental Management System (EMS), meeting ISO 14001 standards.
- 5.2. The EMS will include methods for monitoring, recording and implementing environmental management on site, including provision for formal records of site observations and procedures for responding to and reporting any noted areas of non-compliance.
- 5.3. A Record of Environmental Monitoring and a Record of Management Actions undertaken (including any outcomes of management actions) will be provided when produced. The PC is responsible for keeping these Records of Environmental Monitoring and Management Actions. Record keeping is important in terms of demonstrating compliance throughout the project life-cycle. A Project Completion Report will also be produced by the PC when appropriate.

Environmental records inspections

- 5.4. Records of compliance with the requirements of the CEMP, derived from audits and other inspections, will be held at the PC's site office. These will be available for inspection by representatives of any audit team and the Environment Agency, in their statutory role. The PC's Quality Administrator will ensure there is a central filing system in place for any checklists, reports and monitoring consistent with the QMS and EMS (as detailed above).

Daily inspection checklist

- 5.5. The PC will make key staff aware of their responsibilities for undertaking routine checks of the site and equipment. The PC will have processes and protocols in place for environmental aspects to be checked. On completion of inspection and daily checks, details will be logged and corrective actions implemented by the responsible person, in discussion with the PC. Portsmouth Water will review the log as part of their checking and audit role. Daily inspections and observations will be recorded as per section 6.3.

Procedures to monitor compliance

- 5.6. A Project Record will be maintained for formal records associated with the implementation of the CEMP, which will be managed and controlled within Portsmouth Water's project filing systems.

Administration

- 5.7. The PC is responsible for maintaining site based environmental records. The CEMP is a live document and the Appendices will be updated as required by the PC. If there is any overlap with the Health, Safety, Environment and Quality (HSEQ) files, these will be cross referenced within the CEMP, held by the PC for any formal auditors to track and monitor compliance.

Environmental audit

- 5.8. As part of the Quality, Environmental and Safety management systems it will be necessary for an audit to record environmental compliance. Portsmouth Water's Project Manager will instigate regular audits which will include the review of the monitoring, recording and reporting procedures being maintained by the PC.

Environmental management systems

- 5.9. EMS requirements will be maintained throughout the phases of the Scheme. The PC is required to be accredited or seeking to be accredited under ISO 14001.

- 5.10. The level of environmental management will be monitored to assess compliance with the Contract and environmental standards through inspections and audits.

Control documents

- 5.11. All the PC Risk Assessments, Method Statements and COSHH forms must consider environmental impacts and sensitivities in addition to health and safety concerns.

6. Introduction, training and briefing procedures for staff

Introduction

- 6.1. Table 6-1 identifies an indicative programme of training on environmental issues relevant to the Scheme that have been identified for delivery prior to and during the construction stage. On commencement of site mobilisation, the Principal Contractor (PC) will be the site owner and responsible for site inductions and training of all personnel on the site, whether visitors, full time staff or subcontractors
- 6.2. All individuals working on or visiting the site will be required to attend the Principal Contractor's site-specific induction. Those participating in or near to specific activities that have an environmental impact will be required to attend additional training or toolbox talks (TBTs), led by the PC or specialists, on ecology, pollution control, waste management and emergency procedures for minor and major incidents.
- 6.3. The list below is not exhaustive, and the PC or Environmental Manager onsite must highlight requirements for additional training, as the project progresses, to improve and add value to the overall site environmental awareness and compliance. Additional training or induction issues would be identified from the regular site environmental check reports, or site feedback on any noted noncompliance. It is a requirement for the site to maintain the standard of environmental management and minimise risks that could negatively impact on the environment
- 6.4. Any additional induction and training requirements should be inserted within Table 6-1 below as they are identified throughout the lifetime of the Scheme, by the PC.

Table 6-1 - Indicative training programme

Topic	Personnel	Delivery	Format
Reservoir management: extreme weather and climate change. Regular training to ensure operation of the HTWSR is in line with the requirements of the Reservoirs Act 1975 and that staff are familiar with the procedures required to respond to a range of worst case scenarios that could be caused by climate change or extreme weather.	All operational staff	TBC	TBC
Water quality protection measures	All construction staff	TBC	TBC
Waste management	All construction staff	TBC	TBC

Environmental competencies

- 6.5. The PC shall ensure all personnel conducting environmental tasks are suitably qualified or experienced for the roles and responsibilities that they are employed to undertake.
- 6.6. The PC will monitor and record that all staff have attended the relevant environmental induction or training as listed above (including updated or new training) prior to undertaking any activities on site.

Training and site induction

- 6.7. All site personnel and visitors are to receive Site Safety induction and Environmental Awareness training from the PC before commencing activities on site. The list below is not exclusive but environmental training at Induction will at least include the following:

- Company/Project Environmental Policy.
- Site environment;
- Fuel containment.
- Earthworks and Excavations (Risks of exposing contamination).
- Pollution protocol and measures for example use of spill kits.
- Defined Materials Storage area (excavated and imported).
- Defined waste areas - Domestic and construction materials.
- Wheel wash – road sweeping.
- Dust and emissions control.
- Noise control.
- Vibration control.
- Site traffic protocols and routes in the form of a Traffic Management Plan – haul routes, staff travel to site plan.
- Warning signs.
- Site inspection and monitoring forms.
- Material procurement.
- Toolbox talks where relevant to specific works.
- Communication Systems on site – dealing with the public, incident and near miss reporting inclusive of environment.
- Site organisation, key personnel responsibilities and contact details;
- Emergency Response Plan(s) for addressing Safety and Environmental issues.
- Contamination risk management.
- Update and maintain site specific toolbox talks or advisory sheets relevant to the project.

Toolbox talks and induction supporting materials

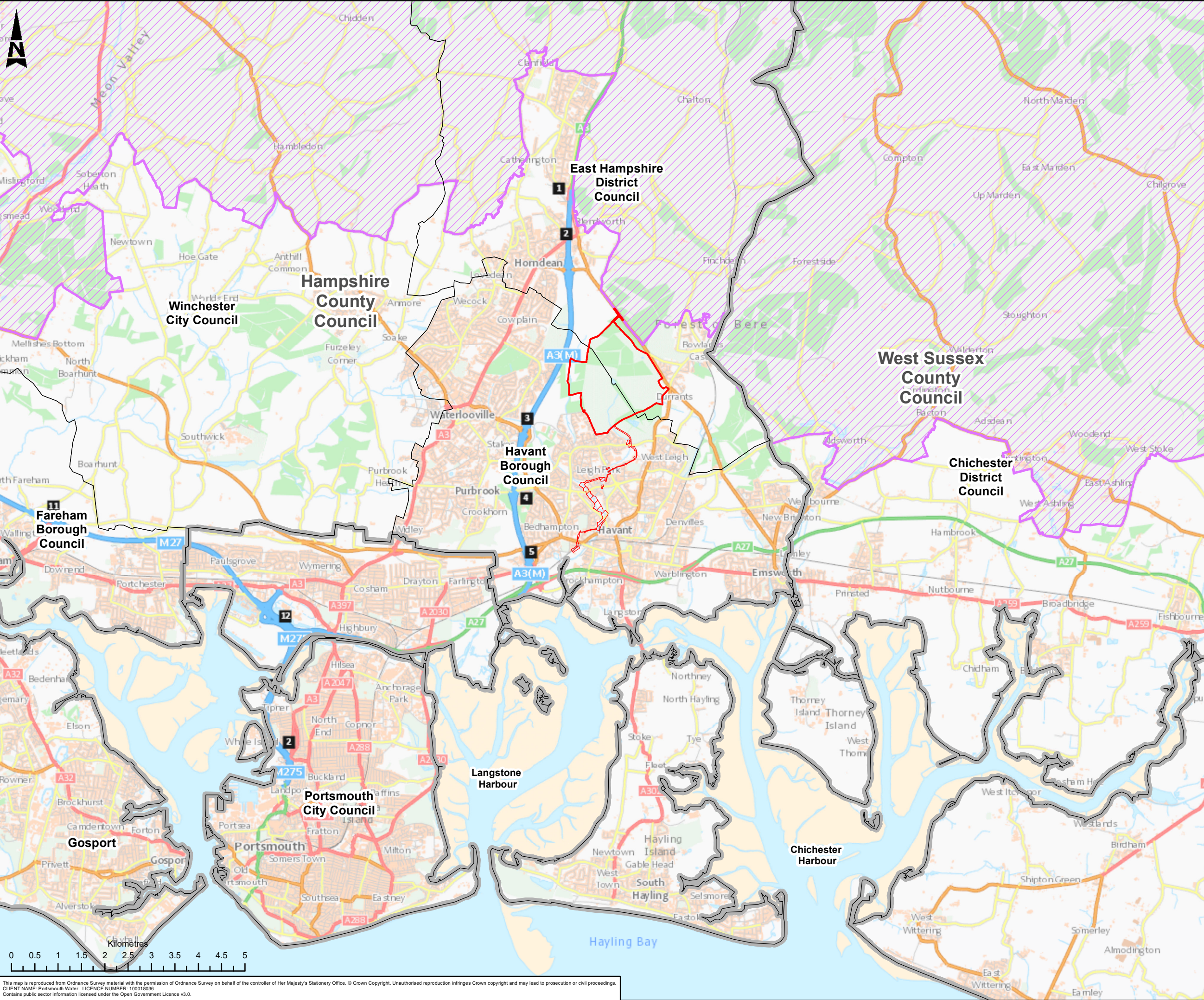
- 6.8. Toolbox talks will be presented to staff involved in activities that have an environmental impact. Toolbox talks will be delivered by a relevant competent person (i.e. ecological toolbox talks to be delivered by the EcOW). The toolbox talks will also be posted within common use areas such as welfare units and office reception areas. Key environmental issues linked to the programme will be targeted on the daily notice board as an aide memoir to all staff on site.

Appendix A. Plans

Figure 1.1 Scheme Setting

Figure 2.2 Environmental Constraints

Figure 2.3 Outline Masterplan



Red Line Boundary

Pipeline Red Line Boundary

Local Authority District

County/Unitary Authority

South Downs National Park

C01	FD	CB	LB	LB	PUBLISHED	19/09/2020
Rev.	Dn By	Old By	Rev By	Auth By	Description	Date

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Drawing Suitability	Status
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Contractors Drawing Number:
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Project | Originator | Volume | Location | Type | Role | Number

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5169117	1 of 1	1:75,000	A3

Project Title
HAVANT THICKET RESERVOIR

Drawing Title
FIGURE 1.1
SCHEME SETTING

Portsmouth Water Drawing Number	Rev
	C01

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LEGEND

RED LINE BOUNDARY

PERMISSIVE PATH - PEDESTRIAN USE (EXISTING)

PERMISSIVE PATH - PEDESTRIAN USE (PROPOSED)

BRIDLEWAY - PEDESTRIAN, CYCLE AND EQUESTRIAN USE (EXISTING)

BRIDLEWAY - PEDESTRIAN, CYCLE AND EQUESTRIAN USE (PROPOSED)

PATH - PEDESTRIAN AND CYCLE USE (PROPOSED)

EXISTING CYCLE PATH

LONG DISTANCE PATH

TEMPORARY BRIDLEWAY DIVERSION (WILL BE REINSTATED TO PERMISSIVE PATH ACCESS)

BIRD WATCHING

CHILDRENS' PLAYGROUND

PICNIC AREA

VIEWING POINT

CAR PARK

VEHICLE ACCESS POINT

ENTRANCE POINT

EXISTING WOODLAND *

NEW WOODLAND

PROPOSED WET WOODLAND

PROPOSED SCRUB REGENERATION

PROPOSED WET GRASSLAND

PROPOSED EMBANKMENT GRASSLAND

PROPOSED WETLANDS

PROPOSED RESERVOIR

* Proposed habitat enhancement areas within red line boundary

Rev	3	2	1	0	Rev Status	Rev	3	2	1	0	Rev	3	2	1	0	Description	Date
Rev 3	RJ	JM	WR	JF	FOR PLANNING	31/07/20											
Rev 2	CMS	JM	WR	LB	FOR PLANNING	29/05/20											
Rev 1	CMS	JM	WR	LB	FOR PLANNING	03/04/20											

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Drawing Title: RESERVOIR OUTLINE MASTERPLAN



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