



CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

Project Title:	Havant Thicket Reservoir – Shaft 1 RMA
Client Name:	Portsmouth Water
Doc Ref:	HTR-WAB-PI-W1-HS-W-0001

CONTRACT NAME		Prepared by		Checked by		Approved by	
Revision	Reason for Revision	Initials	Date	Initials	Date	Initials	Date
001	Upon receipt of FUW CEMP, Complete review for Shaft 1 RMA only, replaces HTR-WAB-PI-XX-HS-W-0006_Environmental Management Plan,	CB	13/12/23				
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1.0 INTRODUCTION AND SCOPE

The objective of the Havant Thicket Reservoir Project is to provide a new resource to supply drinking water in the water-stressed Southeast of England, while maximising the community and environmental benefits of a new raw water reservoir.

Ward and Burke Construction Limited (WBCL) have been appointed by Portsmouth Water Limited (PW) to design, construct, and commission a new pipeline connecting Bedhampton Pumping Station to Havant Thicket Reservoir, including an emergency discharge structure at the Hermitage Stream, culvert upgrades and an Under Track Crossing.

The pipeline corridor extends from the Portsmouth Water pumping station at the Bedhampton works, northwards to the proposed control house within the reservoir site. It passes through the Leigh Park Estate under local roads and open spaces. The corridor also runs north along the Hermitage Stream before turning north-east and broadly following the Riders Lane Stream towards the reservoir site. The Southernmost point of the pipeline is located approximately 1 km north of Chichester Harbour and Langstone Harbour, which are Special Protected Areas (SPA) and Solent Maritime Special Area for Conservation (SAC).

A combination of open cut and micro-tunnelling techniques will be used for the construction of the pipeline. Open cut techniques will take place in two locations: the council playing fields adjacent to Havant Rugby Club; and land in the southwest of Staunton Country Park. Micro-tunnelling will be used for the remainder of the pipeline construction facilitated by eight construction shafts and the emergency discharge chamber.

This Construction Environmental Management Plan (CEMP) forms part of a planning application for a revised pipeline scheme between the Havant Thicket Reservoir and Bedhampton springs and pumping station and has been developed to control the activities during the Shaft 1 Reserved Matters Application (RMA) phase of the HTR-MPW project to meet conditions outlined within the planning permission application (specifically Planning Condition 5). Shaft 1 represents the starting point for the wider HTR – MPW project and enables tunnelling methods to be carried out under the Bedhampton railway track, and for the progression of further tunneling for the rest of the pipeline. A Construction Phasing Plan has been developed for this phase of the project (HTR-WAB-PI-W1-PL-W-003) alongside a Construction Method Statement (HTR-WAB-PI-W1-MS-W-0001.)

SCOPE

This CEMP identifies the project management structure, roles and responsibilities and compliance monitoring with regards to managing and reporting environmental aspects and impacts of the RMA Shaft 1 works only. This CEMP is formed from the requirements listed within the Record of Environmental Actions and Commitments (REAC) table (Appendix 8.1) of the Outline Environmental Management Plan (OEMP) (HTR-ATK-XX-XX-RP-Z-0069) which acts as the framework for this CEMP. This CEMP also follows the contractual requirements outlined and agreed with the client, whilst also adhering to the clients Environment and Sustainability Assurance and Management Plan (HTR-POR-ZZ-ZZ-DP-K-0004). The CEMP will be a live document and will be updated to reflect lessons learned as works progress through shaft 1 construction. Any lessons learnt or new Best Practice tailored to the work will be introduced to this CEMP as the works progress. A new CEMP will replace this document for the remainder of the main pipeline works. Any future updates to be made within this CEMP will be aimed at improving and strengthening actions outlined within this document to further improve environmental management strategies for this stage of the MPW project.

The contents of this environmental plan are based primarily on the applicable requirements of the REAC table within the OEMP, whilst also adhering to PW contract requirements. W&B will also work under an environmental management system (EMS) which conforms to the following specifications as outlined within contractual clause 1710.2 and 1710.3:

BS EN ISO 14001: 2015 Environmental Management Systems.

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All personnel working on the project are responsible for the environmental control of their own work and shall perform their duties in accordance with the requirements of this environmental plan and in compliance with the procedures referenced therein. No deviations are permitted without the written authority of the Project Director.

Compliance with the project environmental management system and the supporting procedures is mandatory and shall be adhered to by all personnel employed on the project to achieve a common approach to environmental control.

The Environmental Manager has overall authority for ensuring that the contents of this environmental management plan are satisfactorily implemented on the project. Any issues or disputes arising from such should be brought to the attention of the Project Manager and the Project SHQE Manager.

1.1 Shaft 1 Reserved Matters Overview

This RMA application is restricted to the construction of Shaft 1 for the Main Pipeline Works for the Havant Thicket Reservoir (HTR) pipeline scheme which will transport the water from the springs at Bedhampton to be stored in the newly constructed Havant Thicket Reservoir. There will be a total of 8 shafts constructed across the pipeline route, along with an Emergency Discharge Chamber shaft will be used for the undertrack crossing (UTX) tunnel near Bedhampton railway track. This enables the construction of the rest of the pipeline scheme which allow for excess water during winter months to be transported and stored in the reservoir which can be then utilised during the summer months when water supply is low in the Portsmouth and Southern Water region. Works for this section of the scheme are predicted to commence in 2024.

The key phases within Shaft 1 RMA construction are:

- Compound set-up – This involves the establishment of site welfare offices, along with lay down areas for construction equipment to be used in the construction of Shaft 1. There will also be parking facilities available on site for construction works and further details of this will be outlined in the Construction Workers Travel Plan (HTR-WAB-PI-PL-W-002).
- Excavation works – Excavation works are to take place at the Shaft 1 location. This involved excavating the ground to allow the sinking of the caisson which forms the main structural component of the shaft.
- Installation of cutting shoe – The cutting shoe is installed on the base of the concrete caisson which allows the structure to cut and sink through the ground as material is being excavated from the inner diameter of the shoe.
- Concrete pours to form caisson – Concrete will be poured inside the caisson shutters which will form the structure of the shaft.
- Sinking of caisson – Sinking of the shaft involved excavating materials from the inside diameter of the caisson structure which will then allow the caisson walls to sink down into the ground, with the cutting shoe aiding in the sinking of the structure.
- Concrete base pour – This will be done when the shaft has been sunk to the required depth and will involve pouring of a concrete base at the bottom of the shaft.

The Site Welfare compound has been constructed within Bedhampton Pumping Station which is owned by Portsmouth Water. The reservoir, when constructed, will be filled with surplus water drawn from the Bedhampton Springs at the Bedhampton pumping station. This will be when flows are at their highest in winter via a new pipeline and will provide water supplies to Portsmouth Water customers in the summer months as required. Bedhampton Pumping Station represents the most suitable location for the site welfare as it is near where shaft 1 works will occur and is easily accessible from nearby roads.

The Construction Method Statement (HTR-WAB-PI-W1-MS-W-0001) has been prepared by Ward and Burke which considers the adjacent Bedhampton train station, and how works will affect users of nearby amenities, along with residents and motorists.

1.2 Bedhampton Pumping Station Site Address: Meyrick Road, Havant, PO9 1NR, as seen in fig.1 below.
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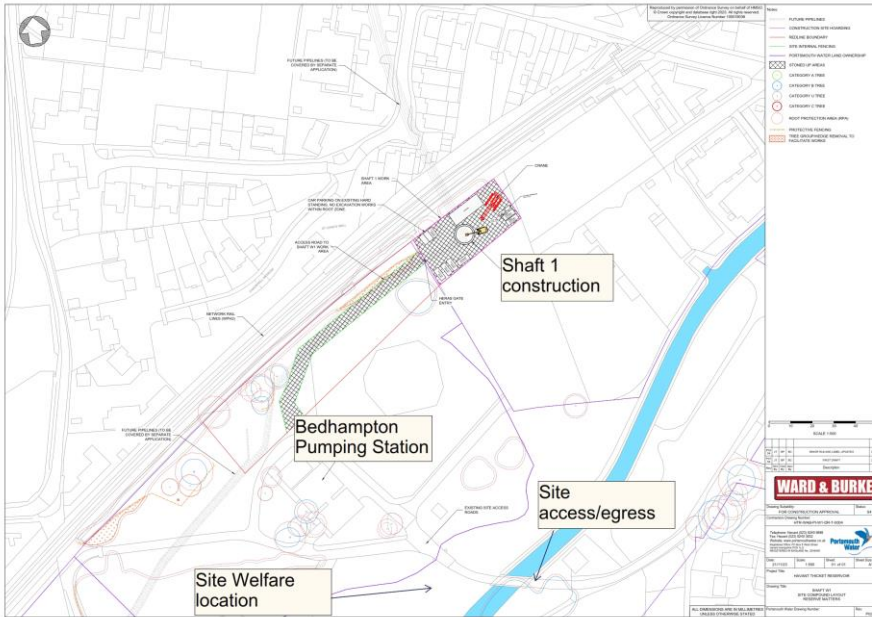


Fig.1 – Site location

1.3 Location Description

The pipeline corridor

The approved pipeline corridor extends from the Portsmouth Water pumping station at Bedhampton to the reservoir site. This Construction Environmental Management Plan (CEMP) is only relevant to the Reserved Matters Application (RMA) for Shaft 1 (Phase 1). This launch shaft will be constructed on the former Portsmouth Water laydown yard (now owned by Bellway Homes) on Palk Road, Bedhampton, Havant, adjacent to Bedhampton train station.

Site Compound

A site compound at Bedhampton has been established for shaft 1 construction. This compound will support early site survey and ground investigation work. The proposed temporary stoned access to the Shaft 1 location will connect to the internal road network and site compound. Fig.2 below illustrates the site compound layout.

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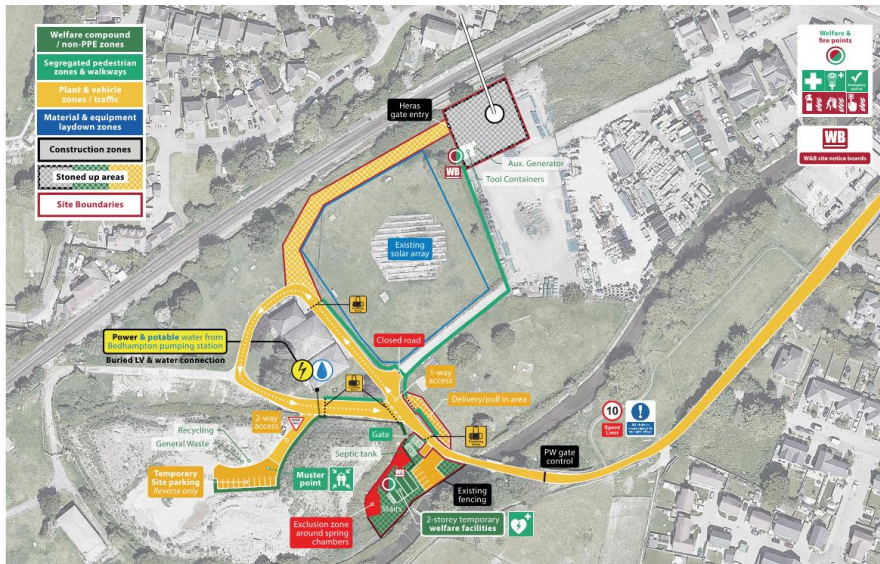


Fig.2 – Site Compound

2.0 ROLES & RESPONSIBILITIES

This section describes the environmental roles and responsibilities of key members of the project team within Ward and Burke and the client, Portsmouth Water.

Project delivery team is as follows:

Role	Contact Name	Address	Number	Email
Client	Mark Tierney	Portsmouth Water, West Street, Havant, Hampshire, PO9 1LG	07918 120 413	Mark.tierney@portsmouthwater.com
Client HTR – Environmental Manager	Mark Jessup	Portsmouth Water, West Street, Havant, Hampshire, PO9 1LG	07582 268750	Mark.jessup@portsmouthwater.com
Client HTR – Ecological Lead	Sinead McCarthy	Portsmouth Water, West Street, Havant, Hampshire, PO9 1LG	07789 142178	Sinead.mccarthy@portsmouthwater.com
Principal Designer	Joe Dobey	WBCL, 25-26 Ivor Place, London, NW1 6HR	020 458 71240	Joe.dobey@wardandburke.com
Principal Contractor	Brien Curran	WBCL, 25-26 Ivor Place, London, NW1 6HR	020 458 71240	Brien.curran@wardandburke.com
Design Manager	Bryn Phillips	WBCL, 25-26 Ivor Place, London, NW1 6HR	020 458 71240	Bryn.phillips@wardandburke.com
Site Manager	Jack Templeman	WBCL, 25-26 Ivor Place, London, NW1 6HR	020 458 71240	Jack.templeman@wardandburke.com
Design Engineer	Jack Templeman	WBCL,	020 458 71240	Jack.templeman@wardandburke.com

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		25-26 Ivor Place, London, NW1 6HR		
Commercial Manager	Sean Sweeney	WBCL, 25-26 Ivor Place, London, NW1 6HR	020 458 71240	Sean.sweeney@wardandburke.com
Quantity Surveyor	Martin Hickey	WBCL, 25-26 Ivor Place, London, NW1 6HR	020 458 71240	Martin.hickey@wardandburke.com
Health, Safety, Environment and Wellbeing Lead	Chris Bolton	WBCL, 25-26 Ivor Place, London, NW1 6HR	07511 220342	Christopher.bolton@wardandburke.com
On-Site Environmental Manager	Jamie Campbell	WBCL, 25-26 Ivor Place, London, NW1 6HR	020 458 71240	Jamie.campbell@wardandburke.com
Sub- Contractors				
SWECO – Designer	TBC	Grove House, Mansion Gate Drive, Leeds, LS7 4DN	0113 262 0000	info@sweco.com

Table 1. Ward and Burke Project Delivery Team

2.1 Client Responsibilities

- Review and approve the CEMP, prepared by the contractor, and specialist procedures and identify any areas for improvement.
- Identify the environmental competence of all contractors (and sub-contractors) working on the project. This includes reviewing of CV's and qualifications for all employees relating to environmental works (Environmental Manager, Environmental Clerk of Works, Ecological Clerk of Works).
- Review method statements for environmental aspects and advise of any suggested improvements prior to work starting.
- Auditing all construction activities to ensure that identified and appropriate control measures are effective and in compliance with the CEMP and planning application conditions.
- Act as a main point of contact between the contractor and the client's project team on environmental issues.

2.2 Project Director – W&B

- To lead by example and champion all areas of environmental management
- Appropriate resources are put in place to effectively implement the CEMP and deliver all legal requirements.
- Implement legal requirements where necessary in accordance with contractual agreements with the client and environmental legislation.
- Holds the overall responsibility for HSWE on site.
- Being the day-to-day point of contact for PW.
- Addressing any escalated issues from the W&B project team.

2.3 Project Manager / Site Manager – W&B

- To lead by example and champion all areas of environmental management
- Implement appropriate resources to effectively deliver requirements within the CEMP and deliver all legal requirements.
- Ensure that all environmental legal requirements are identified and met.
- Ensure all employees and contractors carry out their duties and responsibilities as defined in this CEMP.
- Undertake (or nominate others to undertake) environmental inspections.

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- Monitor environmental performance of the project against statutory requirements, objectives, and targets.
- Identify necessary levels of environmental competence in staff and ensure necessary training is delivered to personnel.
- Manage investigation and resolution of complaints in accordance with the relevant procedure.
- To implement correct procedures in case of an environmental incident.
- Report any environmental incident to the project SHEQ advisor as per PW's 2:2:2 procedure as described in the Construction Phase Plan.
- To act as liaison officer for stakeholders throughout the works.
- Supervision of W&B staff.
- Day to day management of site operations.
- Contributing to the daily and weekly site reports.]
- Ensuring the safety and efficiency of construction activities.

2.4 Supervisors – W&B

- Assist the project manager in implementing the requirements set out in the CEMP.
- Fully support any investigation following an environmental incident
- Conduct and document weekly environmental inspections.
- Ensure that environmental oriented briefings and Toolbox Talks are being delivered to the site workforce.
- Implement and maintain environmental controls on site.
- Respond and report to any spills/incidents that occur on site.
- Report any environmental incidents immediately to the project SHQE or Environmental Advisor
- Report any activity that has potential to have an environmental effect immediately to the project Site Manager.
- Supervision of W&B staff.
- Ensuring the safety and efficiency of construction activities.

2.5 Ward and Burke SHEQ Manager – W&B

- Provide overall advice and co-ordination of all activities relating to environmental matters.
- Provide company environmental support where required.
- Carryout company environmental audit on the project.
- Act as a point of contact for all environmental issues and W&B environmental specific-deliverable updates.
- Ensure W&B staff are carrying out commitments under the REAC and CEMP.
- Preparation, revision, and submission to the client Project Manager of the W&B CEMP.
- Contribute to monthly progress reporting.

2.6 Project SHEQ Advisor – W&B

- Advise the Site Manager on legal requirements.
- Supports the SHEQ Manager and the project management team in delivering the environmental component of the works during the construction phase.Undertake environmental management system inspection as set out in sections.
- Implement the use of an accurate Site Waste Management Plan (WMP) and ensure its applicability to the site operations.
- Review the CEMP throughout the construction process to ensure it remains relevant and effective in identifying and managing environmental risks.
- Carry out reporting of resource usage, e.g. energy and water.
- Manage documentation relating to environmental procedures and to update policy where necessary included within the CEMP.
- Manage all necessary documentation to demonstrate compliance with appropriate legislation for the required period.

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- Undertake and document noise monitoring.
- Provide environmental training to the project team and workforce when required.
- Co-ordinate and report any environmental incident to the appropriate stakeholders as soon as possible.

2.7 Waste Duty Holder - W&B

Waste Management will be carried out in accordance with the project specific procedure. A Minimum of two Waste Duty Holders shall be trained and appointed for the duration of the project. Their responsibilities include:

- Ensure Waste Transfer Notes are collated and kept on file for the duration of the project.
- Where appropriate, ensure sub-contractors method statements include waste disposal methods.
- Make him/her aware of legislation, codes of practice, guidance notes and good environmental working practice relevant to his work. Take advice from the Environmental Advisor in these circumstances.
- Carry out audits on subcontractor's waste management practices.
- Ensure waste on site is stored and handled correctly.
- Ensure waste is segregated and skips labelled correctly.
- Carry out checks on waste carriers and disposal sites to ensure compliance is met.
- Source to Destination checks on waste.
- Retain Waste Transfer Notes (WTN) and Hazardous Waste Consignment Notes (HWCN) in waste file for requisite period post-construction.
- Ensure completion of the project waste register.

2.8 Employees – W&B

- Comply with directions and requirements given in the site induction.
- Proactively approach environmental issues whilst on site
- Report any environmental incidents/near misses immediately to the supervisor or SHQE Advisor
- Carry out all activities in line with the environmental procedures and requirements detailed in the CEMP.

2.9 Contractors – W&B

- Comply with directions and requirements given in the site induction.
- Follow control procedures as instructed within RAMS.
- Contractors working on or visiting the site will be required to attend the 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. Contractors that do not attend site induction will not be permitted to access the site.
- Carry out all activities in line within environmental procedures and requirements detailed in the CEMP.
- Report any environmental incidents/near misses immediately to the Project Manager or SHQE Advisor.

2.10 Environmental Clerk of Works/Environmental Advisor (EnvCoW) – W&B

General

- An EnvCoW will be present on site overseeing any environmentally related matters and to ensure work is undertaken in accordance with the CEMP, environmental legislation and all permits, consents, and licences.
- Aid in preparing documentation for all work activities where there is a risk of environmental damage.
- Liaising with the Client Project Manager and client Environmental Manager in reviewing and updating the Control Measures for all works activities where they have been altered, and
- Being familiar with the contents, environmental commitments and requirements contained within the Reference Documents and Regulatory Requirements section.
- Undertakes day to day monitoring and supervision of construction activities in relation to environmental aspects on site to ensure identified mitigation measures are adhered to and corrective action is taken, as necessary.

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- Being familiar with the baseline data gathered during the Environmental Appraisal and pre-construction surveys e.g. EPS surveys, watercourse crossings, CAR licencing etc.
- Listing all environmental commitments and requirements to the Client Environmental Manager.
- To ensure a competent and trained Ecological Clerk of Works (ECoW) is on site when required. An Ecological Clerk of Works will be required on site for works relating to any vegetation clearance or works involving the encroachment of water bodies. The ECoW will support in:
 - Advising on the protection of ecological features and mitigation measures.
 - Undertaking pre-construction and construction phase species checks.
 - Conducting ecological watching briefs e.g. during grass strimming/ vegetation clearance.
 - Undertaking the translocation of flora and fauna.

Licensing

- Liaise with the PW Planning and Consents Lead to ensure that all relevant works have (and are being carried out in accordance with) the required permits, licenses, certificates, planning permissions, etc; and
- Bringing to the attention of the project team any timing and legal constraints that may be imposed on the carrying out of certain tasks.

Legislation

- Complying with environmental legislation that may affect environmental management during the construction phase.
- Ensuring that environmental staff have an awareness and working knowledge of environmental legislation, environmental standards, and guidance relevant to the construction activities to which they are engaged.
- Key legislation can be found in the appendices of this document (Appendix 8.2).

Site environmental inspections

- Carrying out regular documented inspections/audits of the site to ensure that all work is being carried out in accordance with the REAC requirements outlined within the CEMP and CMS.
- Quarterly ecological progress reports to be provided to LPA during construction as required in the REAC table under the biodiversity actions (Pipeline B1).
- Records the progress of the environmental works.
- Identifies key environmental concerns on site as the Scheme develops. Undertake site inspections with the SHEQ Manager and/or project management team.
- Assesses and checks survey results and update databases, environmental plans as required.

Specialist environmental contractors

- Liaising with the Client Environmental Manager to Identify requirements for specialist environmental contractors before commencement of the project.
- Ensuring that specialist environmental contractors are competent and have sufficient expertise to co-ordinate and manage environmental issues and managing their activities on site. Competent Environmental/Ecological Contractors will be selected using out Sub-Contractor Vendor Approval system, ensuring they are qualified and competent for the task they are undertaking. Skills, Knowledge, Attitude, Training and Experience (SKATE) will be taken into consideration.

Environmental Induction Training and Environmental Toolbox Talks

- Ensure Environmental Induction Training is carried out for all site personnel under the Contractor. The induction training may be carried out in conjunction with Safety Induction Training. TBTs will be

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presented to staff involved in activities that have an environmental impact. TBTs will be delivered by a relevant competent person and will be relevant to the tasks being undertaken. For example, ecological TBTs for works affecting species and habitats will be delivered by the Ecological Clerk of Works (ECoW). Key environmental issues will be posted on the site notice board. Section 4.5 contains further details of inductions and toolbox talks.

- Inputs and reviews site specific method statements to ensure appropriate environmental mitigations are in place for each construction activity.

Environmental Incidents/Spillages

- Ensuring the Client Environmental Project Manager is notified of all incidents where there has been a breach of agreed environmental management procedures; where there has been a spillage of a potentially environmentally harmful substance; where there has been an unauthorised discharge to ground, water or air and where there has been damage to a protected habitat, etc.
- Be ready to assist in always implementing an Emergency Response Plan (ERP) (HTR-WAB-PI-W1-RM-W-0001).
- Be responsible for notifying the relevant statutory authority of environmental incidents; and
- For carrying out an investigation and producing a report regarding environmental incidents and non-conformances as detailed in the ERP (HTR-WAB-PI-W1-RM-W-0001) and Pollution Management and Mitigation Plan (PMMP) (HTR-WAB-PI-XX-HS-W-0007). The report of the incident and details of remedial/corrective action actions taken will be made available to the Client Environmental and Project Managers
- PW's 2:2:2 incident procedure is to be followed if Environmental incident or spill occurs.
- Statutory authority/regulator are to be informed to ensure appropriate measures/responses are taken in relation to the incident in accordance with legislated requirements.

3. Register of Environmental Actions and Commitments (REAC)

3.1 REAC – RMA Shaft 1

The REAC table is available for the complete pipeline corridor for the Main Pipeline Route Project and is included in the Appendix 8.1 of this document. The REAC 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. For RMA Shaft 1, we have ensured the areas relevant to Bedhampton Pumping Station and Bellway hard standing are covered in this CEMP as this is where shaft 1 works will be carried out, along with any relevant areas listed in the REAC that extend outside of the site boundary. Areas which are greyed out in the Appendix REAC are not applicable to Shaft 1 works. . The main areas identified within the REAC for shaft 1 is to limit and control emissions to air during construction (Pipeline AQ1) and to avoid direct and indirect impacts on community and ecological receptors (Pipeline B1-21).

Environmental impacts within this initial Red Line Boundary have been addressed within this document. Boundary for shaft 1 is set out below:



Fig.3 – Shaft 1

3.2 Additional REAC Requirements for RMA Shaft 1

Areas within the REAC table not previously covered in this CEMP, relevant to RMA Shaft 1 Construction, are mentioned below:

3.2.1 Historic Environment

An Archaeological Management Plan has been developed for this RMA as a part of the REAC to identify, evaluate, and record impacts to archaeological remains.

3.2.3 Population and Human Health

During this phase of works, a segregated pedestrian route will be in place for operatives and visitors to site. The public are not able to access this area as the site will be within the gated and fenced Bedhampton Pumping Station grounds. Site Security will be in place, using Wireless CCTV and double clipped and secured Heras fencing. Construction works will be supervised and any Excavations not in use will be covered to prevent falls from height.

3.2.3 Major Accidents and Disasters

To reduce the risk of rail accidents during these works, a detailed GI will be undertaken to inform the design and Construction of Under Track Crossing. This is to be in full compliance of Network Rail's asset protection standards and guidelines. An Emergency Response Plan has been produced for work activities relating to Shaft 1 (HTR-WAB-PI-W1-RM-W-0001) which details the procedures to take place in the event of an emergency within Shaft 1.

4.0 PROJECT ENVIRONMENTAL SYSTEM

4.1 Project Environmental Management System Documentation

This section describes the Environmental Management System (EMS) complying with BS EN ISO 14001:2015 and compliance with the project contract requirements under section 1710.2 and 1710.3 to control the activities to be undertaken during the project. The EMS enables the contractor to comply with the Clients environmental policy and in doing so achieving the Clients environmental and sustainability objectives for the Project (S1710.3).

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Compliance with the project environmental management system shall be monitored and audited by appropriate personnel throughout the duration of the works. Any system non-compliances shall be documented, and appropriate corrective actions issued and implemented. The environmental management system documentation for the project will be established as follows:

SHEQ Policy

Ward and Burke issues individual Safety, Health, Environmental & Quality (SHEQ) Policy on an annual basis. This document demonstrates high level commitment to managing environmental responsibilities and must be displayed on all site office walls and communicated to all project personnel during the SHQE Induction.

Control Procedures and Guidance Notes

Control procedures and guidance notes describe in detail the environmental management activities to be executed to satisfy environmental requirements for all projects.

Project Environmental Plan

This project environmental plan is the specific document of the project Environmental Management System and is based on the requirements of BS EN ISO 14001: 2015. The environmental plan is the document setting out the policies, practices, and procedures for the project. The objective is to employ a system of control so that the client will derive confidence that the project is being undertaken in a way that will protect the environment.

4.2 Environmental Planning

The Project documentation has been reviewed to determine the environmental requirements. A project environmental review will be undertaken monthly as part of Environmental Sub-Group Meetings to evaluate and facilitate control of the environmental effects of the project in accordance with Ward and Burkes Environmental Management System.

The review will as a minimum include the following:

- Preparation of an Environmental Aspects and Impacts Register (Appendix 8.4).
- Identification of any environmental requirements not covered in the existing environmental control procedures and the preparation of Project specific environmental control procedures to be updated within this CEMP.
- Applying environmentally sustainable practice in line with the EMS and contract requirements when carrying out construction works
- Identification and acquisition of any equipment, resources and skills that may be needed to achieve the required standard of environmental control and sustainability.

4.3 Legal Compliance

The project shall develop and maintain the Consents Register (HTR-WAB-BR-W-0001), which shall identify all the legislation that may be applicable for any of the activities carried out across the business. Consents Register is a live document and is currently in further development.

4.4 Document Control

Document control procedures ensure that all correspondence, drawings, and technical data received are recorded, distributed, filed, and archived in an efficient and controlled manner. Control activities exercised on the documentation shall include the following:

- Review of documents and drawings prior to release to ensure that requirements are clearly stated and that they are authorised for issue.
- Identification of documents to be controlled.
- Review and approval of changes to documents and drawings.
- Control of documents, including approved changes to preclude inadvertent use of obsolete or superseded documents.

4.5 Training, Awareness and Competence

a) Project Inductions

The Project SHEQ Manager/Adviser will identify and arrange environmental induction sessions as necessary for Project personnel. The project EnvCoW will also ensure specific TBTs are given during the whole project. During the project induction, the requirements of this environmental plan will be explained and discussed as well as any changes to the normal method of working which have been identified for the project. Ongoing induction requirements will also be identified during facilitation audits. The induction will include information relating to the environmental aspects identified on the project such as:

- Potential archaeological finds
- Waste management and segregation.
- Spill response.
- Refuelling
- Noise
- Environmentally sustainable practices
- Plant, equipment requirements.
- Biodiversity – Birds, Badgers, Bats, etc.
- Invasive plant species
- Tree and hedgerow protection
- Water borehole protection.
- Watercourse protection

b) Environmental Training

The Project Manager will ensure that in accordance with the SHEQ Training Matrix all environmental training requirements are identified and a training programme developed.

Toolbox Talks

All site personnel and visitors are to receive Site Safety induction and Environmental Awareness training from the Ward and Burke before commencing activities on site. The list below is not exhaustive, but environmental training at Induction and through toolbox talks 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.
- Tree and hedgerow protection on site (establishing exclusion zones where necessary)
- 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 (e.g. works near Japanese Knotweed, working with Bentonite, dust control, working around trees and hedgerows.)

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- 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 talk or advisory sheets relevant to the project.

Spill Response Preparedness

The project will ensure a spill response exercise and spill response training is completed and records maintained (and retrievable) on a six-monthly basis. This exercise will comprise of a desk top study or a mock spillage event. Learning outcomes from the exercise should be documented and actions raised if required. All personnel will be made aware of the spill response procedure and reporting requirements through the induction process, toolbox talk briefings. An Emergency Response Plan (HTR-WAB-PI-W1-RM-W-0001) and a Pollution Management and Mitigation Plan (PMMP) (HTR-WAB-PI-XX-HS-W-0007) will be developed for the main pipeline works of this project. The Emergency Response Plan will detail the procedures to take place in the event of an emergency within works. W&B will produce a PMMP detailing how the organisation will protect surrounding environment in the event of pollution resulting from construction activity. These ranges from noise to the local residents, traffic and machine movement that could negatively impact the landscape, flood risk during the reservoir works, construction dust etc. This guidance will respond to the hazardous substance, oil, sewage spills that may threaten or impact ground, surface, or piped stream waters. The Plan is designed to promote timely and effective response to spill events and the likely pollution that could affect the area. It summarizes procedures, policies, and responsibilities for assessing, mitigating, cleaning up, and following up on spills, and for recovering costs for impacts to natural resources. It also clarifies the responsibilities and required responses with respect to the water quality-related aspects of a spill incident, thereby enhancing coordination among the local council, and environmental agency and other responders. 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.

Training Records

Records of all training carried out on the project (including Induction) will be retained and made available for viewing during environmental audits if required. Ward and Burke's direct employee's training records will be retained within the Company Training Matrix. Sub-Contractor's training records will be retained within the Project's SharePoint file structure. Access to this folder is to be controlled by Ward and Burke's Project Manager, Site Manager and SHEQ Manager.

SEAT Training

Site managers and Supervisors will attend the one-day CITB SEAT (Site Environmental Awareness Training). This course is aimed at staff with management or supervisory responsibilities on a construction site, including site managers, site supervisors, site foreman, site agents and those with design or purchasing responsibilities. The SEATS training course will provide employees with an introduction to environmental issues on construction sites and has been designed to provide the basic environmental knowledge.

Subcontractor Competency and Vendor Approval

All Subcontractors employed by the project must be on Ward and Burke's Approved Vendors Register. This Register is an approved list of Contractors who have passed our vetting process, ensuring they are competent, trained and insured for the task they are being employed to carry out on Ward and Burke's behalf. Ward and Burke use the PAS91 Pre-Qualification Questionnaire as template, which is industry best practice. If required specific evidence of personnel competency will be retained by the Project for regulatory or client review.

4.6 Internal Communication

Environmental SHEQ Alerts and bulletins are distributed by the SHEQ/EnvCoW Department as required to key staff including site management to keep them informed of environmental issues such as learning events from incidents/ accidents or new legislation. Poster campaigns will be launched from time to time to raise awareness and keep staff informed of environmental issues within the company.

All project personnel are encouraged to make suggestions for environmental improvement and report environmental problems. In this instance Ward and Burke have various procedures that can be used including open door policy, hazard reporting, STOP/STAR awards, daily briefing and consultation, and formal environmental incident reporting form. The project's environmental issues arising from site environmental reports, corrective action notices or audits are discussed at site meetings and actions apportioned accordingly.

4.7 Monitoring and Audits

➤ In-Process Monitoring

Where required on the Project, environmental monitoring will be carried out in accordance with requirements outlined within the OEMP and REAC, as well as the relevant SHEQ Procedures and Risk Assessment Method Statement (RAMS) for each specific phase of the works. The Project SHEQ Team will ensure that all relevant documentation is correctly completed and retained by the project. The project EnvCoW will also monitor the works and produce Environmental Specific reports for the Client and relevant stakeholders. The clients Project Manager will instigate regular audits which will include the review of the monitoring, recording, and reporting procedures being maintained by the PC. Records of environmental monitoring will be held at the PC's site office and will be available for inspection by representatives from the client's audit team and the EA.

➤ Contract audit requirements:

- The Contractor includes an internal audit schedule in the Contractors Quality Plan (CQP) covering audits to be undertaken in the 12 months from the Project Manager's acceptance of the CQP.
- The Contractor's internal audit schedule uses a risk-based approach, and the Contractor ensures that all key activities are audited at a time and frequency appropriate to the significance of the activity under review.
- The Contractor's internal audit schedule is supplemented by surveillance activities which verify compliance with the Scope.
- The Contractor submits an updated 12 months rolling internal audit schedule to the Project Manager on an annual basis.
- The Contractor makes available all internal audit reports, to the Project Manager within ten days of completion of the audit.
- The Contractor analyses audit findings, non-conformance reports, corrective action reports and acts upon these finding and records actions undertaken.
- The Contractor facilitates and supports the Project Manager in the shadowing of internal audits as required.

➤ Environmental Audits - Project Environmental Inspections

Environmental inspections of the project will be scheduled weekly as part of the environmental Control Plan and environmental audits will be carried out monthly and the results recorded on checklist provided in the appendices (Appendix 8.3). Daily monitoring will be carried out for air quality on site as required within the REAC (AQ1) inline with contractual requirements.

- Monitoring of noise and vibration levels are to be carried out when works are close to sensitive receptors, with frequency and locations to be agreed with the local authority as outlined with the REAC (Pipeline NV6)

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- Daily site inspections are to be carried out by the EnvCoW within areas with communities and ecological receptors that are sensitive to dust. Daily dust inspection logs are to be made available to the local authority when requested.
- Daily recording of weather (wind direction, temperature, precipitation) will be carried out.

➤ Compliance Environmental Audits

A planned programme of compliance audits shall be scheduled to verify the effectiveness project's environmental management system. Audits undertaken must be carried out in accordance with BS EN ISO 19011:2011 as per contractual requirement. The purpose of these audits includes:

- Ensuring that the environmental management plan is being adhered to and that the relevant documentation is being completed.
- Ensuring that progress towards environmental objectives and targets is being monitored.
- Ensuring that legislation and/or other requirements are being complied with.

Audits are to be scheduled using a risk-based approach, ensuring that all key activities are audited at a time and frequency appropriate to the significance of the activity under review. Audits are to be made available to the client Project Manager within ten days of the completion of the audit. Findings of audits must be analysed accordingly and record any corrective actions to be undertaken.

Client Environmental audits are to be carried out by the Client Environmental Manager in accordance with the Construction Environmental Assurance and Management Plan (HTR-POR-ZZ-ZZ-DP-K-0004). The Client Environmental Manager will undertake frequent inspections of works and working areas. Each inspection will include a review of environmental best practice across each of the Environmental topic areas. During initial meetings after Contractor appointment, the Client Environmental Manager will work with the Contractors Environmental Managers to develop and agree a common site inspection/audit checklist. This common approach will then be utilised by both the contractor and client for separate and joint inspections. A joint site inspection shall be arranged to take place as a minimum monthly. The findings of site inspections shall be shared, and best practice celebrated/disseminated, as well as corrective actions identified.

The audit report shall make recommendations for improvement and identify the appropriate personnel and timescales for completing these actions. The contents of the report shall, if necessary, be discussed at site meetings. If a complete failure or absence of a required EMS element is discovered during the audit, a major non-conformance will be raised. The project will have seven (7) days from the date of issue of the audit report to recover the situation and put measures in place to prevent its re-occurrence. If an area of weakness is identified when an element of the system is not being carried out correctly then a non-conformance will be raised, and the project will be given one month from the date of issue of the report to rectify the situation. Ward and Burke representatives shall be afforded full access to accompany auditors during the audit, and a copy of the audit report shall be made available for their review. If deemed necessary, an investigation shall be instigated, and corrective action taken. The effectiveness of any resultant actions carried out will be assessed by the project at an appropriate time scale.

4.8 SHEQ Objectives

Ward and Burke annual SHEQ Objectives and targets shall be adopted and must be displayed on site notice boards and personnel on site made aware of their contents. Projects shall also comply with any client objectives and targets set.

Objective	Target	Measure
Waste Minimisation	90% of waste to be diverted from landfill	Waste hierarchy to be implemented across the project lifecycle. Implementation of a SWMP
Maximise use of site won material	90% of site won material to be reused on site	Material Management Plan

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Biodiversity enhancement	Contribute to the overall Scheme to achieve biodiversity mitigation and compensation in line with the commitments made in the Scheme ES	TBC.
Carbon Reduction	Identify opportunities through the design and construction phases to minimise the carbon footprint of the Scheme.	Follow the carbon management hierarchy: Eliminate, Reduce, Substitute, Compensate.
Sustainable Materials	100% of the key materials (timber, concrete and aggregates) to be sourced from sustainable sources.	Sustainable Procurement Management Plan

Table 2 - SHEQ Objectives

4.9 Project Sustainability Matrix

A project specific sustainability matrix will be produced by the project on an annual basis. The sustainability matrix requires objectives and targets to be set with four different branches of sustainability: Our Environment, Our Workplace, Our Health and Safety and Our Community. The project will appoint a sustainability champion to meet internal and the client sustainability objectives for the duration of the project. It is a contractual requirement to meet the client sustainability objectives (Section 1705.1) and these are as follows:

- Utilise renewable technologies for electricity and heat generation in the operation of the facilities wherever technically and economically feasible, design and insulate buildings to minimise heat loss during winter and heat gain during summer, select low carbon construction materials, minimise emissions whilst travelling to Site, analyse, minimise and mitigate whole life environmental impact of construction works, design infrastructure which is resilient to climate change including extreme weather conditions and severe storm events, ensure Equipment is fitted with pollutant reducing emission controls, reduce, reuse and recycle waste both during construction and operation of the facilities, reduce, reuse and recycle water both during construction and operation of the facilities, eliminate the use of single use plastics both during construction and operation of the facilities, ensure excavated material is beneficially reused where practical, ensure off-site disposal of materials is avoided where practical, except for materials exported for sale, design landscape and buildings to minimise and mitigate any conflict with wildlife and habitats, protect watercourses from construction-related pollution risk and provide protection of existing flora and fauna. minimise the loss of ancient woodland and to protect veteran and other trees and use plant and materials which are sympathetic to the environments in which they are working, select sustainable, low carbon and emissions plant and materials.

It is their responsibility to ensure the matrix is produced and managed and agreed with PW. Operatives and staff from across the project will be assigned actions and included in the creation of the matrix with a wider contribution leading to better results. Progress towards the objectives and targets contained within the matrix will be forward to the Environment Adviser on a quarterly basis. The Project delivery team are to be fully conversant with the objectives and targets contained within the matrix. Progress towards meeting the objectives and targets will be discussed during project site meetings on a regular basis.

To continue to do business W&B need to make sure that materials, people, and finances are available. We need to also ensure that our approach to construction doesn't damage the environment or negatively affect society. It is an expectation that we are responsible, ethical and to minimise our activity impacts on the environment and society. These expectations are from clients, shareholders, and public. To achieve this, Ward, and Burke Construction will:

- Reuse excavated materials onsite to minimise waste.
- Protect plants and animals in or adjacent to the site.

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- Regular public liaison (e.g. notice boards, letter drops, operations team meetings) to keep everyone updated with project programme.
- Use of local labour and suppliers to enhance local economy and minimise environmental impacts of transportation.
- Train and upskill staff.
- Reduce energy and water use, by calculating use rates and coming up with ideas to reduce their uses.
- Advise clients on the outcome of other environmental benefits from site investigations. This may include protecting the areas of natural reserves etc.
- Consulting with environmental agency on the solution to protecting streams and local habitat and apply for relevant consents.
- Where necessary, ~~we would~~ complete the habitat regulations assessment.

4.10 Incident Reporting

All environmental incidents will be reported as per the Ward and Burke environmental incident reporting procedure, and PW's 2:2:2 incident procedure as described in the Construction Phase Plan Incident Reporting Procedure. An outline of this reporting procedure is:

All Health and Safety or Environmental incidents or accidents resulting in either injury, damage, polluting event, contamination, dangerous occurrence or 'near misses' must be logged on to the company incident reporting system by the site agent/manager. This will be reported to the SHEQ Advisor/Manager immediately and where considered necessary will be investigated by WBCL.

All accidents and incidents will be in accordance with the WBCL escalation procedure, and will be following Portsmouth Water's 2-2-2 reporting procedure:

- 2 Hours to notify HTR Health and Safety Manager (Dave Doe/John Hutton) by phone or email or Sinead McCarthy/Mark Jessop within 1 hour if Environmental Incident occurs.
- 2 days for the Investigation to be sent to relevant department (H&S or Environment team)
- 2 weeks for further investigation and an EIR if required.

Spillages of considerable volume or substances other than hydrocarbons or silted water should be communicated to the SHEQ Advisor via telephone or email as soon as possible. Any environmental pollution in rivers or streams must be immediately reported to Head of SHEQ, Project Director and Project Manager. In the event of a spillage, action is to be taken by following the outlined procedures detailed PMMP (HTR-WAB-PI-XX-HS-W-0007)

4.11 Environmental Nuisance Complaints Recording

All complaints that are received on an environmental nature will be recorded in the Environmental Complaints Register and will include references to any monitoring undertaken (e.g. daily dust & air) to service these complaints. This register will be maintained within the environmental file on site and made available during environmental audits if required. Engagement with the public is to be established through the Consents and Stakeholder Management Plan.

4.12 Communication with Other Bodies

In the event of the Environment Agency coming to site to inspect the works, Ward and Burke are to comply with their requirements and inform Portsmouth Water of the inspection as soon as practicably possible. Mark Tierney HTR Project Manager) and Mark Jessup (Portsmouth Water -HTR Environment Manager) will be those informed as a priority.

If routine, or emergency communication is required with other Regulatory Bodies, Ward and Burke are to discuss with Portsmouth Water the process and procedure of the communication. Document and information sharing is to be agreed upon prior to contact being made.

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4.13 Refuelling Machines and Equipment

Refuelling will be carried out in accordance with approved project procedures, task specific procedures will be briefed via site RAMS once inducted to site by the SHQE team or Site Manager.

4.14 Noise Monitoring Duty Holders

Suitably trained personnel will carry out noise monitoring to confirm compliance with Local Authority Planning Conditions and Client requirements. Daily Monitoring will be planned to take account of site activities that are likely to generate high noise levels, (e.g. breaking concrete) and be measured local to the activity as well as at recognised locations in the Planning Conditions and Client requirements. Throughout this project, we will be monitoring specific areas of concern, which are at most at risk of disturbance. Noise monitoring will be carried out by the EnvCoW using handheld noise monitoring devices which will record noise at specific locations daily to assess the noise impact during particular activities. Peak noise monitoring will be carried out which focuses on capturing the highest levels of noises from particular activities such as piling, and excavation works. In the UK, there is no single set of dB limits for environmental noise that applies universally. Regulations and guidelines can vary depending on the source of the noise, the location, and the time of day. However, for construction activities, the document BS 5228-1:2009 suggests that noise levels should not exceed 70 dBA in rural, suburban, and urban areas away from main roads and 75 dBA in urban areas near main roads between 07:00 and 19:00 hours. Records of noise monitoring are to be stored and made available within the site offices.

5.0 PROJECT ENVIRONMENTAL CONTROLS

The following activities will be carried out during RMA Shaft 1 construction, and they have been identified as having significant environmental aspects.

- Waste Management
- Handling and Storage of Materials
- Spill Response and Emergency Preparedness
- Nuisance
- Noise and Vibration
- Dust
- Air Quality
- Aqueous Discharges
- Piling Operations
- Flora/Fauna
- Biodiversity
- Invasive Non-Native Species (INNS)
- Energy Consumption and Minimisation
- Traffic Management
- Historic Environment
- Population and Human Health
- Major Accidents and Disasters

5.1 WASTE MANAGEMENT

The project shall ensure that all legal requirements for waste will be complied with. Ward and Burke will manage waste generated from operations and collate all relevant waste disposal documentation. A Site Waste Management Plan has been developed for the Main Pipeline Works. (HTR-WAB-PI-XX-HS-W-0008).

The Site Manager and SHEQ advisor will monitor the segregation of the waste on site and carry out the relevant checks on waste carriers, waste disposal destinations and ensure the correct completion of all waste documentation. All waste generated will be placed within the appropriate skips/containers for disposal as outlined in the paragraph below. Waste segregation will be achieved via separate suitable containers, lidded where appropriate and labelled. All waste containers will be stored on an impervious surface and within the designated area as shown on the Site Layout Plan. This designated area will be located away from environmentally sensitive areas on site such as drains and watercourses. The area around the skips will be

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kept tidy and full skips will be removed from site as soon as is practicable, ensuring there is no over-storage of waste on site. The following waste streams will be segregated on site:

- General (including office and canteen waste)
- Wood
- Metal
- Paper and Cardboard
- Excavated materials. (Bricks and rubble)
- Redundant cabling
- Plastic
- Glass
- Sewage
- Concrete
- Hazardous/COSHH

All hazardous/special waste produced on site will be double-bagged and labelled with the contents placed within a suitable labelled and lockable container for storage. All hazardous/special waste will be removed from the site by appropriate waste contractors or the responsible subcontractor and be disposed as per required waste legislation. Sewage waste from welfare facilities will be stored on site in a septic tank and will be collected from site via a licensed human waste disposal company. The Waste Duty Holders will ensure that all documentation is completed prior to disposal. The following hazardous/special wastes may be created on site:

- Batteries
- Paint tins (containing liquid paint or non-water-based paint)
- Aerosols
- Oily rags
- Used spill response materials.
- Japanese Knotweed removal

A register of all waste removed from the site will be kept along with waste documentation and held by the SHEQ Advisor. The register will detail dates, subcontractors, quantity of waste as well as end use (recycled, re-used or to landfill). The project will introduce a waste minimisation strategy outlined within the SWMP (HTR-WAB-PI-BR-HS-W-0008) in accordance with the requirements of the CEMP. Where practical the quantity of waste arising will be minimised, and materials re-used either directly or indirectly where possible. Imported packaging waste produced by the project will be recycled whenever possible. Periodic audits of all subcontractors must be undertaken on a six-monthly basis as a minimum. All documentation relating to the transfer and disposal of waste (i.e. waste transfer notes and hazardous/special waste consignment (Trans frontier Shipments)) must be maintained on the project for the documented period. Any sewage, from temporary toilet facilities that need to be provided during any phase of the contract, will be disposed of as per local legislation:

- **Hampshire Minerals and Waste Plan 2013** - *The Plan establishes Hampshire's strategy for managing minerals and waste. It sets out 34 policies relating to minerals and waste, these include the safeguarding of mineral resources and infrastructure sites, ensuring an adequate supply of aggregate, maximising recycled and secondary aggregate production and the sustainable management of waste. The Plan defines the MSAs in Hampshire. In addition, the Plan states that a key objective is to maximise the reuse, recycling and recovery of construction, demolition, and excavation (CDE) wastes. For non-hazardous waste, it sets targets for 60% to be recycled and 95% to be diverted from landfill by 2020. A review of the Plan in 2020 concluded that a partial update was required to ensure full compliance with NPPF and the NPPW. A Draft Plan Consultation was run between November 2022 and January 2023, with an updated Plan still to be published, the Scheme will consider the current Hampshire Minerals and Waste Plan 2013.*

5.2 HANDLING AND STORAGE OF MATERIALS

Any COSHH items, that are used during the project, must be evaluated for environmental risk and potential threat to the environment by referring to the Safety Data Sheet (SDS) that accompanies the product. COSHH items refer to substances that are hazardous to health. Substances can take many forms and include:

- Chemicals
- Products containing chemicals.
- Fumes.
- Dust.
- Vapours.
- Mists.
- Gases and asphyxiating gases.
- Biological agents.

Designated areas are to be established for the storage of all materials, plant, and equipment and locations are to be submitted to the client Project Manager for acceptance prior to establishing. Designated areas are clearly identified and documented on the Site Layout Plan (Fig.2). Materials must be stored in accordance with the manufacturer's instructions and protected from accidental damage. Storage of materials that could cause a risk to water quality, including fuels and chemicals to the client Project Manager for acceptance two weeks prior to undertaking the relevant works. A high level of housekeeping will be maintained which involves maintaining a high level of tidiness and cleanliness within all storage areas. Storage containers will be clearly labelled with their contents and a basic inventory produced. All storage locations, machinery, equipment, fuel stores, chemicals and temporary buildings will be located to limit adverse environmental effects and all sensitive areas (Rail Track, Springs, Water course etc.) close by will be protected. Heras fencing is to be constructed around storage areas to mitigate against any unauthorised access and act as a visible deterrent.

Diesel and oil will be delivered to site and stored in compliance with regulations and the relevant SHQE procedure/guidance note. Larger quantities of over 200 litres will be stored in a double skinned container, not a single skin tank, with a separate bund. If smaller quantities of diesel or oil are required to be stored on site, they will be stored in approved labelled containers and securely located within a bunded area or drip tray. Bunded areas should be capable of holding 110% of the stored container or, if multiple containers, 25% of the largest container. Fuel storage areas will be located away from watercourses and drains (a minimum of 10 metres). Bunded areas will also be stored on impervious surfaces and all hoses, valves and triggers will always be stored within the bund. Bunded areas must be located to prevent protection from accidental damage (particularly from vehicles) or acts of vandalism. Great care must be taken when refuelling mobile plant and equipment to prevent spillages. Refuelling will only take place in a designated area with a fire extinguisher and a spill kit in the immediate vicinity. Only a competent and authorised person, identified in task specific RAMS, will undertake refuelling.

Wherever possible new equipment (e.g. transformers) should be delivered already filled with oil; if the Project needs to remove oil from old equipment, then this will be done so in a controlled manner, which will be outlined within task specific RAMS and reviewed, where applicable, by PW. All mobile plant (unless it has an integral drip tray) will have drip trays positioned beneath it when stored. Additional drip trays and spill kits will be provided near plant to contain any leaks should they occur, to ensure immediate emergency protection is available. Drip trays will also be used when refuelling or breaking containment in equipment or pipelines. Contents of drips trays and waste oils are to be decanted into storage containers, such as interceptor trays, which will be stored in a hard standing area. Under no circumstances should drip trays be emptied into the drainage system.

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Any other substances hazardous to health which are to be used on the project will be stored in the designated area only and will be handled correctly i.e. by using appropriate containers and in accordance with the appropriate COSHH Regulations 2002 (Appendix 8.2). The level of hazardous substances to site personnel must not exceed occupational exposure standards and maximum exposure limits stated in the current version of the HSE document (EH40: Occupational Exposure Limits). Substances and chemicals handled/stored by subcontractors shall be monitored and COSHH assessed for any hazardous substances to ensure compliance with contractual requirements and company procedures, i.e. appropriate method statements, COSHH sheets available, preventative measures against spillage's, etc. Compliance against these requirements will be checked as part of the weekly environmental inspection and the results recorded. These inspection forms will be reviewed during formal environmental audits.

5.3 SPILL RESPONSE AND EMERGENCY PREPAREDNESS

As polluting materials will be stored and used on site, an adequate number of spill response measures will be provided. Works will be carried out in accordance with the CDM Regulations (2015) (Appendix 8.2) to implement appropriate guidelines and best practice in response to spillages and leaks. W&B will implement an Emergency Response Plan (ERP) (HTR-WAB-PI-W1-RM-W-0001) and a Pollution Mitigation Management Plan (PMMP) (HTR-WAB-PI-XX-HS-W-0007) for the main pipeline works that includes action to be taken for the following incidents:

- Oil, fuel, and chemical spills.
- Accidents including falling into water.
- Flooding.
- Breakdowns.
- Unexpected circumstances.
- Unplanned changes to operations.
- Adverse weather conditions.

In the event of an incident, the PW Project Manager will be notified immediately. The Site Manager will implement the emergency response procedure which will be made known to all staff during site induction and TBT's will be delivered to ensure staff are familiar with the ERP and the PMMP.

Spill response stations will be available in several locations around the site in the case of accidental release. In addition, all plant used on this project will carry a 25-litre spill response kit on board. An emergency flow chart for environmental spillage has been developed within the on site Emergency Spill Response Plan. This flowchart will be introduced as part of the SHQE Induction and will be displayed around the site to ensure appropriate spill response and emergency preparedness measures are followed to prevent and mitigate further damage due to accidents and/or incidents are communicated. The flow chart will include the following details:

- Contact names and numbers.
- Emergency response actions.

Compliance against these requirements will be checked as part of the weekly environmental inspections and the results recorded. This inspection checklist will be reviewed during formal environmental audits.

5.4 NUISANCE

Local Councils are required to investigate complaints about issues that can be described as a 'statutory nuisance' under the Environmental Protection Act 1990 (Appendix 8.2). Issues that may be a 'statutory nuisance' include:

- Noise from premises or from vehicles, equipment, or machinery in the street.
- Smoke from premises.
- Smells from industry, trade, or business premises.

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- Artificial light from premises.
- Insect infestations from industrial, trade or business premises.
- Accumulation or deposits on premises (e.g. piles of rotting rubbish)

For the issue to count as a statutory nuisance it must do one of the following:

- Unreasonably and substantially interfere with the use or enjoyment of a home or other premises.
- Injure health or be likely to injure health.

Measures shall be taken to prevent the occurrence of any nuisances arising because of any activities on the Project by ensuring that all staff and operatives are briefed on the requirement to minimise nuisance from site activities via toolbox talks. A complaints procedure will be implemented on the project and contact numbers being communicated to all personnel and displayed on office notice boards. In the event of an environmental nuisance complaint being received, these must be logged on the complaint register and where required corrective measures undertaken. The complaints register will be reviewed during formal environmental audits. On-site monitoring will be carried out by the EnvCoW to ensure mitigation measures outlined in toolbox talks relating to 'nuisance' are being followed, as well as ensuring mitigation measures outlined in the Noise and Vibration Impact Assessment (HTR-ATK-ZZ-ZZ-RP-Z-0112) are adhered to.

5.5 NOISE AND VIBRATION

The project shall implement mitigation measures to ensure that the noise emitted from all equipment, operations and services used during the project will be practically minimised in line with the recommendations of BS 5228-1(Code of practice for noise and vibration control on construction and open sites. Noise), clause 9.3 to minimise noise levels during the works. All vehicles, plant and machinery used on site will be maintained in efficient working order to minimise any potential excess noise produced. Mobile plant is to be sited as far away from sensitive receptors (e.g. residential areas, main roads) as reasonably possible. Construction work that gives rise to noise that is audible outside the site boundary shall not be carried out except between agreed hours and with the appropriate approval. Under planning conditions, working hours are restricted to between the hours of 08:00 – 18:00 Monday to Friday and 08:00 – 13:00 on Saturdays at the Site unless permission obtained from the Project Manager, including deliveries to the Contractor's compounds. Any work to be carried outside the agreed hours shall be notified to the relevant Departments of the Local Authority for prior approval. In general site management will consider the following noise hierarchy:

- Eliminate the source of the noise.
- Substitute for quieter methods of working.
- Isolate source of the noise.
- Engineering controls, i.e. barriers, silencers, insulation.
- Restriction of working hours.

A Noise and Vibration Impact Assessment has been carried out for the Main Pipeline Works (HTR-ATK-ZZ-ZZ-RP-Z-0112) which includes information relating to the Shaft 1 works. Shaft 1 works are expected to be carried out over a duration of 72 days. There are potential noise impacts for 12 residential receptors and 1 non-residential receptor. In relation to construction vibration, it has been determined that there will only be 1 potential residential receptor impacted due to earth compaction at the shaft site. Operational noise for shaft 1 is negligible.

Ward and Burke and contractors will adopt mitigation measures supported by the Noise and Vibration Impact Assessment (HTR-ATK-ZZ-ZZ-RP-Z-0112), to mitigate effects on sensitive receptors, including but not limited to the following:

- All mobile plant and equipment will be fitted with acoustic panels that will be kept closed whilst running.
- All mobile plant and equipment will be switched off when not in use.
- All equipment will be well maintained, including dampers and silencers.
- Faulty equipment will be removed from use.

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- Restrict the number of vehicles allowed on site.
- 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.
- Using vibration-generating equipment at the minimum vibration amplitude.
- Where practicable, using a 'dead rolling' method when vibratory rollers are required for compaction activities, which involves not applying the vibration system on the rolling equipment.
- Ensuring that all staff and operatives are briefed on the requirement to minimise nuisance from site activities via toolbox talks. Polyfan/PCT grinding and cutting discs will be used, where appropriate, that allow up to four times the exposure to both vibration and noise over conventional discs. Regular noise surveys including octave band analysis, where appropriate, will be undertaken throughout the works, during grinding, drilling and other noise generating activities.
- Any equipment/plant that appears to be generating high noise levels will be checked for any potential defaults by a competent plant fitter/mechanic and removed from site if found unsuitable. Alternative plant/equipment will be investigated for suitability to carry out the work if required.
- If noise limits have been set by the Local Authority or Client mitigation measures to achieve these desired noise limits will be updated within this CEMP. Compliance with these requirements outlined in the Noise & Vibration Impact Assessment (HTR-ATK-ZZ-ZZ-RP-Z-0112) will be checked as part of the weekly environmental inspection and the results recorded. This audit checklist will be available in the site offices and will be reviewed during formal environmental audits.

Works are to be carried out, in accordance with Section 72 of the Control of Pollution Act 1974 and Section 79 of the Environment Protection Act 1990 (Appendix 8.2).

5.6 DUST

If there are any issues with dust during the execution of the works, the Site Manager will implement control and mitigation measures such as damping down to prevent the spread of airborne particulates. If harmful particulates are to be disturbed (e.g. Man-made mineral fibers) more stringent controls will be enforced in accordance with the legislation (Appendix 8.2) and/or Client procedures, along with mitigation measures outlined within the Pollution Mitigation and Management Plan (HTR-WAB-PI-XX-HS-W-0007). Compliance against these requirements will be checked as part of the weekly environmental inspection and the results recorded. This inspection checklist will be stored within the site offices reviewed during formal environmental audits.

5.7 AIR QUALITY

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 (Appendix 8.2), to reduce fumes or emissions which may impact upon air quality. With appropriate mitigation measures in place, any adverse effects resulting from the construction works is to be minimised such that there would not be any significant ongoing or residual effect on receptors. Ward and Burke will undertake mitigation measures to address construction dust from the site, considering the direct and indirect impacts of site preparation and construction works on residential and business uses, and ecological receptors such as flora and fauna.

Mitigation measures include:

Site Management:

- Record all Noise, Vibration, Dust and Air Quality complaints, identify cause(s), take appropriate measures to reduce emissions immediately, and record the measures taken.
- Make the complaints log available to the local authority when asked; and

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- Record any exceptional incidents that cause dust and/or air emissions on site, and the action taken to resolve the situation in the logbook.

Monitoring:

- Carry out regular site inspections to monitor compliance with dust management within this CEMP, record inspection results, and make an inspection log available to stakeholders and the client when requested.
- The site EnvCoW is to carry out daily dust and noise monitoring to monitor activities with a high potential to produce dust. Dust/Noise monitoring stations are to be identified where required around the Bellway Development site and Bedhampton Pumping Station, as these areas will be directly affected from Shaft 1 works.

Preparing and Maintaining the Site:

- Plan site layout (Fig.2) so that machinery and dust causing activities are located away from receptors, as far as reasonably practical.
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site, which will aid in preventing the dust being transported by the wind. Stockpiles can also be dampened down using water to prevent dust from rising. Cutting tools that produce dust must have a Local Exhaust Ventilation (LEV) attached which collects the dust produced preventing the dust from escaping into the atmosphere.
- Noise suppressing screens to be implemented around known areas where site noise may be of concern as outlined within the REAC table of the OEMP and the Noise & Vibration Impact Assessment (HTR-ATK-ZZ-ZZ-RP-Z-0112) From the Noise and Vibration Assessment, screens for Shaft 1 works are to be located towards the north of the Shaft 1 location, shielding the properties on Burnswick Gardens. For maximum effectiveness, barriers will be brought as close as reasonably possible to either the noise source or the receiving positions. In addition, there should be no gaps or openings at joints in the barrier material. All screens need to extend to a height such that the 'line of sight' between noise. Subject to safety considerations, temporary screens will be mounted on wheels to facilitate onsite relocation. Any gaps between the ground and the bottom of the panel will be less than 100 mm.
- Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
- Prevent site runoff of water or mud. Refer to PMMP (HTR-WAB-PI-XX-HS-W-0007) for further guidance.
- 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 (sawdust from wood cutting, concrete, bricks, silica) 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 Traffic Management Plan (HTR-WAB-PI-W1-PL-W-0001) 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.

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- 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:

- Bonfires and burning of waste materials are forbidden on this project.

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 Track out:

- 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.
- No dry sweeping to be undertaken to prevent to production of dust. Ensure muck away lorries 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 logbook.
- 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); 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 permit.

5.8 AQUEOUS DISCHARGES

During RMA Shaft 1 construction, Ward and Burke shall ensure that no harm to individuals or to the environment occur due to aqueous discharges into controlled waters, this is to be minimised and eliminated where possible. Water or other liquid carrying silt or other forms of pollution caused by the project will not enter any watercourse or be allowed to enter onto adjoining land, under any circumstances. Measures such as bunding, gulley suckers, settlement lagoons, Silt Busters etc. will be utilised to ensure this does not occur. Discharges will only be carried out via the approved discharge route which will be monitored on a regular basis, as defined within the consent/permit register, to ensure they do not cause a breach any of the limits set by the regulator. No Discharges are to take place without the required Environmental permit from the Environmental Agency. During excavation works, pumped water will be directed to a settlement tank, lagoon area or to a filtration system prior to discharge dependent upon the location and size of the excavations (9.4m Diameter, 11.4m depth). All pumping operations will be carried out in accordance with an approved instruction developed by the Project Management Team. No discharges to controlled waters will be made without prior authorisation from the SHEQ Advisor, via approval from the Environmental Agency.. Compliance against these requirements will be checked as part of the weekly environmental inspections conducted by the EnvCoW/Environmental Advisor.

5.9 PILING OPERATIONS

Only an approved specialist contractor will be used to carry out Piling on the project. The contract will have individuals trained in the safe operation and use of the equipment. The work will always be carried out under

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a safe system of work supported by a specific method statement and work activity specific risk assessment for the work to be undertaken. All wastes arising will be disposed of in accordance with the controlled waste under the Environmental Act 1990 (Section 33 and 34) (Appendix 8.2) and SHEQ Procedure. Waste carriers must provide a copy of the carrier's license to transport materials and copies of all waste transfer notes or consignment notes where applicable.

5.10 FLORA

All trees, hedges, and shrubs within or adjacent to the site, except those that have been approved for removal shall be protected from damage during construction work by the erection of 'Heras' Fencing. If works around plants are Dust producing works, screens are to be considered to protect Flora against Dust. Wherever possible the removal of any flora will be limited, and removal will only be carried out with the prior approval of the ECoWand within the approved tree protection plans.. It has been noted that two priority plants, small-flowered buttercup (*Ranunculus abortivus*) and wall bedstraw (*Galium parisiense*) are present approximately 4 m west of the Shaft 1. Wall bedstraw is listed as vulnerable on the Great British and English Red Lists. Small-flowered buttercup is listed as 'Least Concern' on the Great British Red List and both plants are listed on the Hampshire Rare Plants Register.

Both plants were identified in winter 2023 and, therefore, it is possible that the plants may cover a broader area during the core growing season (April to September). However, conditions within the working area of Shaft 1 are less favourable as both species prefer areas of short grassland/ disturbed ground. Pre – construction surveys will be carried out prior to works commencing to confirm no species are present. If species are found, translocation will need to be carried out by the ECoW to effectively re-locate the species safely.

During these RMA Shaft 1 works, excavation is planned for the creation of an access road between Bedhampton Pumping Station 1 and Bellway Land in the vicinity of where Japanese Knotweed was formerly present. This Japanese Knotweed has been successfully treated above ground most recently in 2022 and has not been visible above ground the last 2 years, but although the species is not currently visible above ground, it may still be active in the form of rhizomes within the topsoil so extra care must be taken when excavating this area to eliminate the likelihood of spreading Japanese Knotweed via the topsoil rhizomes. The Biosecurity Management Plan (HTR-WAB-PI-XX-HS-W-0012) and contractors RAMS will be referred to for further detail on the removal of JK and the removal of contaminated topsoil. Japanese Knotweed at the site has been recorded in recent years at the Welfare Site/Launch Shaft 1 site. Survey has been complete for this area with 3 methods of removal of Japanese Knotweed identified within works. These are:

- Dig and Dump – Involves excavated the JK to full depth and transported to a specially licensed landfill facility.
- Dig and Relocate – Involves excavating the knotweed to full depth and relocating the JK to another area on site away from works, as a landscape bund. It will then be monitored for any re-growth and be controlled via herbicide treatments.
- Dig and Cap – JK is excavated to a depth of 600mm from current ground levels, and the remaining knotweed is then capped with a specialist horizontal root barrier. Excavated waste will be transported to a specially licensed landfill facility.

Prior to works progressing, these works are to be planned alongside phased works. A competent and licensed contractor is to be used for these works, following best practice guidance outlined within the Biosecurity Management Plan (HTR-WAB-PI-XX-HS-W-0012) alongside contractors RAMS. To align with DEFRA requirements, contractors for JK removal must be accredited and registered with the following :

- Amenity Forum Membership
- BASIS Professional Register
- BASIS Amenity Training Register
- Basis Nominated Storekeeper (NSK) Professional Register
- Invasive Non-Native Specialist Association (INNSA)

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- Property Care Association (PCA)

5.11 JAPANESE KNOTWEED MANAGEMENT

To avoid the spread of Japanese Knotweed, contact with all parts of the plant must be minimised. A Biosecurity Management Plan (HTR-WAB-PI-XX-HS-W-0012) has been produced to determine the mitigation requirements necessary regarding any potential harmful impacts that may be caused when dealing with Japanese Knotweed. The following guidance will be followed -

- Any stands of Japanese Knotweed will be fenced off during the works, with a 7m exclusion zone where no ground works will be permitted.
- If works require extending into the 7m exclusion zone, the Biosecurity Management Plan will need to be updated and provide information concerning biosecurity and waste removal to a licensed hazardous waste site.
- If any further Japanese Knotweed is found on site during works, works should stop within 7m of the JK and the Environmental Advisor contacted. A further site walkover will be undertaken, prior to construction works resuming, to identify any additional stands of INNS or changes to the current extents identified on site.
- A toolbox talk will be given to all site staff on the identification of Japanese Knotweed and the site-specific control measures to be taken. Japanese Knotweed shall be identified in the site induction and information sheets for INNS to be displayed on the site notice boards.
- Signs will also be placed around areas of INNS to ensure site staff are aware of where control measures are located. This will ensure all site operatives are aware of the risks posed by Japanese Knotweed and its spread. Areas which contain INNS will also be fenced off using Heras fencing to avoid encroachment from operatives.
- Upon completion of the works all plant shall be washed down using water and disinfectant to minimise any spread. The Check-Clean-Dry approach will be followed.

5.12 Biodiversity

Within the REAC (Ch 9 of OEMP), Ward and Burke are to plan the works to ensure the protection of Sites of Importance for Natures Conservation (SINC's) and ancient woodland. During this phase of works for RMA Shaft 1, no works are planned in this area. A parcel of coastal and floodplain grazing marsh priority habitat identified during the desk study (HTR-ATK-ZZ-ZZ-RP-Z-0109) undertaken in 2020, is located immediately adjacent to Shaft 1. The field surveys undertaken in 2020 confirmed that the species assemblage and topography of the habitat does not fit the criteria for coastal and floodplain grazing marsh and, therefore, is not anticipated to pose a constraint to the works and no mitigation measures are required.

All mature trees will be protected through appropriate mitigation measures or through the realignment of the route to avoid trees. Protection of retained trees will follow standard practice (i.e. BS 5837:2012 Trees in relation to design, demolition, and construction – recommendations). A construction exclusion zone will be established using Heras 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.

5.13 Fauna

Wherever possible the project will avoid disturbing any fauna within/near to the project works. Any fauna observed will be monitored and avoidance techniques utilised.

An Ecological Compensation and Enhancement Measures plan has been prepared to inform this Management Plan (Shaft 1 RMA_ Ecological Mitigation Compensation and Enhancement Measures001) .

Fish Populations:

As part of the Reserved Matters Application phase of works within Bellway, a Fish Management Plan is not required.

Badgers:

Badgers were not identified at Shaft 1 in 2020. However, habitat suitability for badgers was identified and considering the highly mobile nature of the species, there is potential for badgers to utilise Shaft 1 in the future. As such, a pre-works checks will be carried out by an ECoW for badger field signs, including badger setts, is required at least six months prior to works commencing, to determine whether badgers are present or likely absent. The pre-works check will also be used to identify and record other mammal holes (i.e. rabbit warrens and fox dens) to prevent an offence under the Wild Mammals Act 1996.

Reptiles:

Habitat suitability for widespread species of reptile can be identified at Shaft 1. The ground around a stand of blackthorn scrub to the north of the access track at Shaft 1 is often seasonally inundated and, therefore, provides poor suitability for hibernating reptiles. However, it does provide suitability for foraging and commuting reptiles. The adjacent other neutral grassland parcel and hard standing provides suitability for basking reptiles. A large spoil heap identified within the proposed compound at Shaft 1 may provide suitability for sheltering and hibernating reptiles. As such, an Ecological Clerk of Works (ECoW) will be required to undertake a pre-works check for widespread species of reptile immediately prior to the clearance of scrub and grassland. The ECoW will also be required to undertake a pre-works check for basking widespread species of reptile across the hard standing at Shaft 1. If works are undertaken within the reptile hibernation period, typically taken to be from 1st October to 31st March, an ECoW will also be required to supervise the dismantling of the spoil pile, if removal of the spoil pile is required.

Bats:

No trees or buildings with potential roosting features (PRFs) for bats were identified within Shaft 1. However, one tree assessed as providing low potential (Tree 99) and two trees assessed as providing moderate potential (Trees 98 and 100) were identified within 100 m of Shaft. Additionally, the Bedhampton Pumping Station (Bedhampton Building 1), which is located within 10 m of Shaft 1, was subject to an external building inspection in 2023 and assessed as providing high potential for roosting bats. Suitable commuting and foraging habitat surrounding Shaft 1 was identified in 2023 and comprises woodland, scrub, grassland, the riparian corridor along Hermitage Stream to the south of the Shaft 1 and the rail corridor along the northern boundary of Shaft 1.

Due to the proximity of three trees and one building with potential to support roosting bats and the presence of a variety of habitat types with the potential to support commuting and foraging bats, no construction activity is to occur during night-time hours, taken to be 30 minutes prior to sunset to 30 minutes after sunrise, to prevent disturbance to bats emerging from/re-entering potential roosts or to commuting bats.

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 habitat and on trees and buildings assessed as providing suitability for roosting bats. A buffer is to be implemented and maintained around trees and buildings during construction.

Nesting Birds:

Blackthorn scrub located along the northern boundary of Shaft 1 was identified and was assessed as providing habitat suitability for nesting birds., of which approximately 65 m² will be cleared to facilitate the works. As such, efforts will be made for clearance of the scrub to be undertaken outside of the core nesting

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bird season, which is typically taken to be from 1st March to 31st August. If this is not possible, an ECoW will be required to undertake a pre-works check for nesting birds within the 24-hour period prior to the clearance commencing.

5.14 Energy Consumption and Minimisation

Energy consumption and management on the project will be monitored and the information (invoice copies) submitted to the SHEQ Department on a quarterly basis. This is to be monitored under Ward and Burke's ISO 50001:2018 Energy Management System. Wherever possible renewable sources of energy will be utilised on the project, either directly or indirectly, complying with the Clients environmental and sustainability objectives. Measures will be implemented on site to reduce the energy used e.g. poster campaign to remind personnel to switch off equipment when not in use, switch off stickers to be placed above light switches (motion sensors on lights to be investigated), energy conservation toolbox talk to be carried out etc. Plant and equipment should be sourced which is adequate for the required task (for example an appropriately sized generator). A Graded appliances are to be considered for Site Welfare.

5.15 Fluorinated Gases

Any refrigerant gases used in equipment, such as air conditioning units must be known. A register of equipment, containing such gases must be kept detailing the type of gas and the quantity. The amount of gas within each piece of equipment will determine if six monthly or annual maintenance is required.

Maintenance must be carried out by trained, competent personnel. Copies of qualifications for those undertaking the maintenance of the equipment must be held on file at the relevant location/site. Personnel wishing to undertake leak checking, recovery, installation, servicing, and maintenance on RAC systems containing or designed to contain 3 kg or more of an F gas refrigerant need to hold formal qualifications which cover as appropriate: installation, testing and maintenance of air-conditioning and heat pump systems; Installation and maintenance of refrigeration systems; leak checking, recovery, servicing, and maintenance of equipment.

Personnel wishing to undertake leak checking, recovery, installation, servicing, and maintenance on RAC systems containing or designed to contain less than 3 kg of F gas need to hold formal qualifications covering: Installation, servicing, and maintenance of equipment with a charge of less than 3kg, (6kg if hermetically sealed) and leakage checking.

5.16 Traffic Management

Noise and nuisance caused by traffic associated to the project should be minimised as far as possible. A Construction Traffic Management Plan for this phase of the works has been developed (HTR-WAB-PI-W1-PL-W-0001). The following will be followed to reduce the likelihood of nuisance arising:

- Traffic to and from site shall use the approved route for site traffic shown on the approved plan.
- 'No Access' signage for construction traffic at designated areas will be installed.
- Vehicle movement on site restricted to a speed of 10mph.
- A detailed schedule, detailing the volume, timing and density of construction traffic will be provided.
- Road cones may have to be placed at designated areas and warning signs posted in advance of lights.
- Heavy goods vehicles shall not arrive or leave the site except between agreed hours. Any heavy goods vehicles movements' out-with the agreed hours shall be notified to the Project Manager for prior approval.
- During construction the approved traffic route is to be kept free of mud and debris resulting from the development. Any such deposits found on the local roads is to be removed regularly using road brushes and vacuum road sweepers.

5.17 On-site Emergency Flood Plan

An on-site emergency flood plan will be prepared in a separate document (HTR-WAB-PI-W1-HS-W-0003). On site plans are designed to manage any risks that may result in an uncontrolled release of water. Plans will

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include information on key personnel involved on site for responding to emergency flooding situations and the mitigating actions to be taken to control the unprecedented release of large volumes of water.

5.18 Drainage Management Plan

A drainage management plan will be established in a separate document for the main pipeline works. This will include details of how excess surface water run-off from new hard standing areas such as access roads, car parks, and storage compounds will be managed to ensure there is no increased flood risk. Sustainable Drainage Systems (SuDS) will be applied to drainage design where possible to ensure optimum drainage solutions are achieved as part of the Flood and Water Management Act of 2010. Local drainage plans within the established site will also be incorporated into the drainage management plan. The drainage management plan will also include details of how the construction compounds will safely manage surface water flows in line with the relative Environmental Agency Pollution Prevention Guidance (PPG) and the Construction Industry Research and Information Association (CIRIA) guidance.

5.19 Monitoring

A water monitoring strategy will be outlined in a separate document. The monitoring programme will coincide with the complex nature of this project and will follow all relevant legislative requirements to ensure sufficient monitoring is carried out and required water standards are achieved. Monitoring parameters covered will include discharge flow monitoring, laboratory sampling via borehole sampling, and visual monitoring.

5.20 Site Specific issues

Site specific issues will be addressed accordingly based on the immediate areas within the construction and site compound area. Focus will be placed on immediate water sources, flora, and fauna within the associated boundary. Appropriate Risk Assessments must be carried out prior to works to evaluate any potential risks that may be involved when addressing site specific issues. Mitigation measures must also be implemented to minimise the risks involved.

6. Conditions of Planning Permission

6.1 Ecological Mitigation, Compensation and Enhancement Measures

An Ecological Mitigation, Compensation and enhancement document has been prepared prior to construction works progressing. This has been developed using the Environmental Impact Assessment provided by Atkins as part of the original approved pipeline application. This document includes:

- Purpose and Objectives of the proposed works.
- Detailed designs and working methods.
- Extent and location of proposed works shown on appropriate scale maps.
- Timetable for implementation, demonstrating that works are aligned with the construction phases.
- Person responsible for implementing the works.
- Details of initial aftercare and long-term maintenance.

6.2 Further Planning

An Environmental Clerk of Works (EnvCoW) has been identified with Roles and Responsibilities outlined. Practical measures, both physical and sensitive working practices, are to be set out in the project RAMS, and any associated RAMS where applicable. Species Mitigation RAMS must be issued for client review when produced.

A construction timetable is to be established which includes periods where a specialist ecologist is to be on site to monitor the works, conduct pre-works surveys or act as an Ecological Clerk of Works. This is to be planned and supervised throughout RMA Shaft 1. The timetable is to include the location and timing where harm to the biodiversity could possibly occur.

7. FURTHER SOURCES OF INFORMATION & ADVICE

Further sources of information are listed below which can provide guidance and advice on aspects related to environmental matters:

<https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/>
<https://cdn.havant.gov.uk/public/documents/Havant%20Borough%20Biodiversity%20Strategy.pdf>
<https://www.legislation.gov.uk/ukpga/1974/40/section/72>

ENVIRONMENT AGENCY

Environment Agency Inspectors have similar powers to HSE Inspectors. They can go anywhere on site, remove any evidence or sample for testing and investigation, take statements, photographs, and documentation, and they can serve improvement/abatement notices, impose fines, and prosecute offenders. They can also advise of ways to comply with legislation and your Duty of Care

Emergencies EA & SEPA (Eng. Wales & Scot.): 0800 80 70 60

General Enquiries EA (Eng. and Wales): 03708 506 506

General Enquiries SEPA (Scotland): 01786 457700

General Enquiries EPA (Ireland): 053 916 0600

Waste Action Line SEPA (Scotland): 0800 389 5270

Waste Registration EA (England): 03708 502 85

8.0 APPENDICES

8.1 Record of Environmental Actions and Commitments (REAC): RMA Shaft 1 Works (Areas highlighted in grey do not apply to Shaft 1 Works)

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Contractor Scope	Client Scope
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 <i>Contractor</i> 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;	Contractor	



Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Contractor Scope	Client Scope
			- 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.			
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Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Contractor Scope	Client Scope
			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 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);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.		
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.	Contractor	
Pipeline HE2	Ch 8	To identify, evaluate, and record impacts to archaeological remains	Development of an Archaeological Management Plan	Contractor	

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Contractor Scope	Client Scope	
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.	Contractor		
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.	Contractor		
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.	Contractor		
Pipeline B3	CH9	To protect areas of SINCs 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.	Contractor		
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	Contractor		

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Contractor Scope	Client Scope	
			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 SINC.	Contractor		
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.	Contractor		
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.	Contractor		
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.	Contractor		
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.	Contractor		

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Contractor Scope	Client Scope	
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.	Contractor		
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.	Contractor		
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.	Contractor		
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.	Contractor		
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.	Contractor		

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Contractor Scope	Client Scope	
Pipeline	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.	Contractor		
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.	Contractor		
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.	Contractor		
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.	Contractor		
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.	Contractor		
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 SINCs during the maintenance period.	Contractor		
Pipeline B21	CH9	To report as required under licences.	Monitoring requirements will be met, as set out in the dormouse licence.	Contractor to assist the Client in supplying information for the license		
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.	Contractor		

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Contractor Scope	Client Scope
		with potential discovery of UXO.			
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 <i>Contractor</i> to undertake works in accordance with the CDM Regulations 2015 and appropriate guidelines and best practice. Principal <i>Contractor</i> 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;	Contractor	

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Contractor Scope	Client Scope	
			- 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.			
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.	Contractor		
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 <i>Contractor</i> to construct the Scheme in accordance with the submitted design and planning applications.	Contractor		

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Contractor Scope	Client Scope	
				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 <i>Contractor</i> 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.	Contractor		
Pipeline GC6	CH 10	To reduce soil erosion and compaction during construction works.	Principal <i>Contractor</i> 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.	Contractor		
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 <i>Contractor</i> to construct the Scheme in accordance with the submitted design and planning applications.	Contractor		

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Contractor Scope	Client Scope	
			The Scheme will be operated in accordance with the relevant regulations and best practice guidance in applying Best Available Techniques.			
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.	Contractor		
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.	Contractor		
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.	Contractor		
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.	Contractor		
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.	Contractor		
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	Contractor		

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Contractor Scope	Client Scope	
			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.	Contractor		
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.	Contractor		
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.	Contractor		
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.	Contractor		
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.	Contractor (to end of Defects Period)		

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	Contractor		
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Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Contractor Scope	Client Scope	
			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	Contractor		
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	Contractor		
Pipeline NV4	CH12	Reassess Noise and Vibration Impacts	Reassess noise and vibration impacts once method of working, plant and programme have been agreed	Contractor		
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	Contractor		
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	Contractor		

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Contractor Scope	Client Scope	
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	Contractor		
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.	Contractor		
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.	Contractor		
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.	Contractor		
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.	Contractor		
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.	Contractor		
Pipeline TT6	CH13	Minimise the impact of PRoW closure / diversion.	Develop alternative routeing strategy for PRoW	Contractor		
Pipeline TT7	CH13	Minimise staff car trips	Use mini-bus / shuttle bus to transport staff to and from pipeline from welfare facilities.	Contractor		

Material resources and waste

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Contractor Scope	Client Scope
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 <i>Contractor</i> to implement the Scheme as set out in the design and planning applications.	Contractor	
Pipeline MRW2	CH14	To manage wastes effectively in accordance with the waste hierarchy and waste regulations.	Principal <i>Contractor</i> 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.	Contractor	
Pipeline MRW3	CH14	To effectively reuse excavated materials across the Scheme.	Principal <i>Contractor</i> 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.	Contractor	

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Contractor Scope	Client Scope	
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.	Contractor		
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.	Contractor		
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	Contractor		
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.	Contractor		
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	Contractor		

Ref	ES ref	Objective	Actions/commitments (incl. specific location and any monitoring required)	Contractor Scope	Client Scope	
			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.	Contractor		
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.	Contractor		
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.	Contractor		

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.	Contractor		
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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).	Contractor (during Contract period)		
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8.2 Key Legislation

	Key Legislation
Environment and Sustainability through Design	- Wildlife & Countryside Act 1981 - Conservation of Habitat & Species Regulations 2017(as amended) - Water Frameworks Directive 2000 - The Hedgerow Regulations 1997 - Flood and Water Management Act 2010
Ground Conditions	- Environmental Protection Act 1990 - The Environmental Permitting (England & Wales) Regulations 2016 - Construction (Design & Management) Regulations 2015 - Control of Substances Hazardous to Health (COSHH) Regulations 2002 - Flood and Water Management Act 2010
Landscape and Visual	- European Union Directive 2011/92/EU - The Guidance for Landscape and Visual Impact Assessment, Third Edition
Noise and Vibration	- Control of Pollution Act 1974 - Environment Protection Act 1990
Material Resources and Waste	- EU Directive 2008/98/EC on waste - Environmental Permitting (England and Wales) Regulations 2016 - Hazardous Waste (England and Wales) Regulations 2005 (as amended by the Hazardous Waste - Hampshire Minerals and Waste Plan 2013
Air Quality	- The Air Quality Standards Regulations 2010 - Air Quality (England) Regulations 2000 - Air Quality (England)(Amended) Regulations 2002 - UK Climate Change Act (2008)
Historic Environment	- Ancient Monuments and Archaeological Areas Act (1979) - Planning (Listed Buildings and Conservation Areas) Act 1990

	• Construction (Design & Management) Regulations (CDM Regulations) 2015
• Biodiversity	• EU Directive 2008/98/EC on waste • Environmental Permitting (England and Wales) Regulations 2016 • Hazardous Waste (England and Wales) Regulations 2005 (as amended by the Hazardous Waste (England and Wales) Amendment Regulations 2009 and 2016)
• Water Environment	• The Environmental Permitting (England & Wales) Regulations 2016 • The Land Drainage Act 1991 • The Water Resource Act 1991 • Water Abstraction and Impounding Regulations 2017 • Water Frameworks Directive • Flood and Water Management Act 2010
• Effects on Climate	• UK Climate Change Act 2008
• Population and Human Health	• Public Health Energy Strategy 2020-25
• Major Accidents and Disasters	• Control of Major Accidents Hazards Regulations 2015.

8.3 ENVIRONMENTAL MANAGEMENT CHECKLIST

Project Name:		Site Agent Name:			
Project Number:		Date of Inspection:			
			Yes	No	N/A
Site Environmental Management System					
1. Is the company environmental policy available and displayed on site? - Is it up to date?					
2. Has the contract and client documentation been reviewed to identify the site-specific environmental requirements, including planning conditions and control procedures?					
3. Has a CEMP, Aspect & Impact register, SWMP, Baseline Questionnaire been prepared to identify the relevant objectives, issues and controls?					
Are they regularly reviewed?					
4. Has environmental issues been communicated to site team (including sub-contractors)?					
5. Has responsibilities for environmental management been made clear to duty owners					
6. Are all environmental licences and permits in place?					
7. Is there a suitable and sufficient monitoring regime in place to ensure that the site environmental requirements are being met (inspection and document review)?					
8. Are Environmental factors included in Risk Assessments?					
9. Are Environmental issues adequately addressed at site induction? Including briefing operatives of good Environmental practices?					
Waste Management, storage, and disposal					
10. Are there skips for segregation of waste onsite? If so, - Are they labelled accordingly? - Is COSHH waste skip/bin available? - Is the skip made available for food waste covered?					
11. Is there a licenced waste removal sub-contractor appointed? If so, - Is the waste carrier registration available? - Have they completed the competence questionnaire?? - Do they provide waste transfer notes when they remove waste?					
12. Is hazardous waste removed responsibly from site? What arrangements are in place to remove hazardous waste?					
13. Are hazardous wastes (oil, fuel, paints, and so on) collected and stored separately from general wastes? - Are lids secured on all hazardous waste containers? - Is hazardous waste appropriately labelled?					
14. Have designated area(s) been established on site to segregate and reuse waste materials?					
15. Do waste transfer documents include the right information (six-digit waste codes, licence number of carrier, tip location and declaration regarding the waste hierarchy)? - Are hazardous waste consignment notes (HWCN) obtained for hazardous waste?					
16. Are waste transfer documents being retained: if sent to Ireland Office, call and confirm retaining period. Two years for non-hazardous and three years for hazardous waste?					
17. Spill Prevention: - Is the area free of spills? - Is the area free of other housekeeping issues?					
18. If spills were found: - Was the spill cleaned up properly? - Was the spill log and report completed?					

19. Spill Kits:			
- Are the spill kits on site complete?			
- Are the spill kits stored in appropriate locations?			
Statutory Nuisance			
20. Are appropriate dust suppression techniques used to minimise air pollution from timber sawing or planning, stone or block cutting, crushing, and so on?			
21. Is dust on site haul roads and material stockpiles dampened down adequately?			
22. Are site vehicle speed limits controlled to reduce dust?			
23. Have the works been assessed to identify the noise and vibration impact on local houses?			
24. Has the local environmental health officer and neighbours been consulted and forewarned of any out-of-hours or major disruptive activities?			
25. Have working hours been defined to restrict noisy operations to certain times of day?			
26. If a Control of Pollution Act Section 61 consent is required, are noise levels being recorded to ensure that levels are kept within limits?			
27. If possible, have working methods been reviewed to use equipment that reduces noise and vibration (such as pile jacking and chemical bursting)?			
28. Are deliveries planned to suit the local area?			
29. Is dewatering taking place on site			
If yes;			
- Is there a suitable plan in place to dewater onsite?			
- Is there a designated area where the water is going to be discharged?			
- Is dewatering activity going to take place for 6 consecutive months or more?			
- If so, have an abstraction permit been applied for?			
- Is a silt buster tank in place before water is discharged?			
- Does the tank the right dimension for the dewatering activity?			
- Is dewatering RAMS in place, if so, has it considered all scenarios & control measures?			
- Is a member of the project team tasked with monitoring the dewatering activity daily?			
Ecology/Biodiversity			
30. Has a Biodiversity Management Plan been produced?			
31. Has an Invasive Non-Native Species (INNS) Management Plan been produced if required?			
- Has a 7m exclusion zone been established in areas close INNS?			
32. Is adequate protection in place for existing planted areas?			
33. Has an appropriate Ecological Clerk of Works (ECoW) or Environmental Clerk of Works (ENVCoW) been appointed if required?			
34. Have pre-construction surveys been carried out for vegetation clearance?			
- These surveys are to be carried out by a competent person in the fields of ecology, arboriculture, etc.			
35. Has appropriate toolbox talks been carried out in relation to vegetation removal?			
36. Has vegetation removal been carried out within the appropriate timeframe?			
- This is to mitigate the impact of vegetation removal during nesting season which typically runs from March to the end of August.			
37. Are works within, adjacent, or likely to affect a designated area? (e.g. SAC, SINC, Nature Reserve, Ancient Woodland).			
If yes:			

- Has an adequate buffer boundary been established? - Has the relevant LPA been informed where necessary? - Has permission been granted by the LPA? - Have relevant licenses been obtained? (if so please specify)			
38. Have surveys been carried out to identify the presence of any protected fauna and within the construction area?			
- Have mitigation measures been implemented to protect fauna if present?			
39. Has the design stage incorporated the protection of ecology & biodiversity within the project?			
40. Have provisions to achieve 10% Biodiversity Net Gain (BNG) been implemented?			
41. Are watercourses in the site area free from signs of pollution?			
- Are concrete washouts located at least 10m from watercourses? - Is fuel storage at least 10m away from watercourses?			
Sub – contractor & supply chain			
42. Are sub – contractor carrying out work on behalf of Ward & Burke?			
43. Have all environmental arrangement been shared with them			
44. Are sub – contractor organisation adhering to the systems in place and are they helping Ward & Burke achieve their environmental objectives?			
Emergency Preparedness			
45. Are fire extinguishers / fighting facilities properly maintained and not expired? Escape not blocked / obstructed?			
46. Is there a system for sites to deal with environmental emergencies (such as for spillages and groundwater contamination) and for notifying them to the relevant authority?			
Comments & Actions			

Name:		Position:		Signature:	
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SIGNIFICANCE RATING

F - Frequency of Occurrence X S - Severity of consequence of loss of control (include breaches of legislation) = (C - Significance Rating)

Hierarchy of risk: Where significance rating is 10 or above, an Environmental Risk Assessment must be completed.

Legislation Reviewed/Considered: Yes / No. Follow link for legislative updates

<http://www.legislation.gov.uk/all?theme=environment>.

Always consider direct and indirect impact on the environment. Activities not yet commenced but considered possible during course of works will be assessed for significance. All aspects and activities are to be assessed by team (site management and H&S Manager) and grouped according to aspect and rated for significance as follows:

		Severity of consequence				
		Insignificant or no impact – Rating 1	Minor compliance impact EX spill requiring adsorbent material – Rating 2	Moderate aesthetic impact – Rating 3	Major regulatory impact, EPA notification – Rating 4	Catastrophic impact, toxic release – Rating 5
Frequency	Almost certain / once a day – Rating 5	5	10	15	20	25
	Likely / once a week – Rating 4	4	8	12	16	20
	Moderate / once a month – Rating 3	3	6	9	12	15
	Unlikely / once a year – Rating 2	2	4	6	8	10
	Rare / once every 5 years – Rating 1	1	2	3	4	5
Risk Score Risk Rating		<6 Low	6-9 Medium	10-15 High	>15 Very High	

ACTIVITIES

➤ TUNNELLING

ASPECTS & IMPACTS	COMMENTS	SCORES F x S=C
Groundwater contamination	Leaks, spillages or damage by oil etc possible. Also considered breakages of utilities.	1 x 4 = 4
Disposal of spoil and slurry	Use of approved/ licensed contractors and end use. Contamination and leaks also considered.	5 x 1 = 5
Traffic	Noise, damage to habitat etc	3 x 2 = 6
Ground borne vibration.	Disturbance of fauna, neighbours and damage to utilities considered.	3 x 3 = 9
Noise	Noise from traffic, equipment etc considered. Annoyance of neighbours etc	3 x 2 = 6
Archaeological issues	Damage from tunnelling / movement etc considered.	1 x 4 = 4
Site access	Damage by unauthorised visitors-spillages etc considered. Fenced and security.	2 x 2 = 4
Possible settlement	Settlement can lead to accidents, damage to flora and fauna etc	1 x 4 = 4

➤ CONCRETE POURING

ASPECTS & IMPACTS	COMMENTS	SCORES F x S = C
Noise	Noise from traffic, equipment etc considered.	4 x 2 = 8
Vibration	Disturbance of fauna, neighbours and damage to utilities considered.	3 x 3 = 9
Dust Cement dust	Considered nuisance and contamination.	2 x 3 = 6
Additives-hazardous	Contamination of ground and water courses.	2 x 4 = 8
Washout	Potential contamination of watercourses. Washout to be carried out at least 10m away from watercourses.	3 x 4 = 12
Surface drainage	Contamination considered.	3 x 4 = 12
Waste material	Adequate disposal considered.	2 x 3 = 6
Use of resources	Control of usage considered.	2 x 3 = 6

Releases to water	Can contaminate water courses.	3 x 4 = 12
Wash down water Silo/ equipment cleaning	Contamination of water courses considered.	3 x 4 = 12
Maintenance of pumps, pipelines & equipment	Can lead to noise and leakages if not maintained	2 x 2 = 4

➤ **TEMPORARY WORKS**

ASPECTS & IMPACTS	COMMENTS	SCORES F x S = C
Traffic and access routes	Disruption to ecosystem and neighbours	4 x 2 = 8
Plant maintenance	Can cause noise and leaks etc	4 x 2 = 8
Noise	Disturbance of fauna, neighbours and damage to utilities considered.	4 x 3 = 12
Vibration	Disturbance of fauna, neighbours and damage to utilities considered.	4 x 3 = 12
Use of oils and chemicals- resources	Resource usage and contamination of ground/ water	2 x 4 = 8
Waste	Waste adequately disposed of	4 x 1 = 4
Closeness to watercourses	Contamination of water	3 x 4 = 12
Site access	Damage by un authorised visitors-spillages etc considered.	2 x 2 = 4
Ground contamination	Leaks of oil and spillages	2 x 4 = 8
Dust	Noise and vibration from traffic, equipment etc considered. Disturbance of fauna, neighbours and damage to utilities considered.	4 x 2 = 8

➤ **WORKING NEAR WATER**

ASPECTS & IMPACTS	COMMENTS	SCORES F x S = C
Temporary works	Disruption of ecosystem Noise can disrupt ecosystem and annoy neighbour	3 x 4 = 12
Use of oils and chemicals	Resource usage	3 x 4 = 12
Pollution of water by plant-Oil Spillages - Refuelling	Leaks and spillages can occur.	3 x 4 = 12

Plant maintenance.	Noise and leaks can occur due to inadequate maintenance.	3 x 4 = 12
Dust	Dust and vibration from traffic, equipment etc considered. Disturbance of fauna, neighbours and damage to utilities considered.	3 x 3 = 9
Noise	Noise from traffic, equipment etc considered. Disturbance of fauna, neighbours and damage to utilities considered.	4 x 3 = 12
Odour	Odours can occur-work stopped if deemed dangerous.	2 x 4 = 8
Damage of stream beds	Traffic and movement can damage beds-defish process by Fisheries Board (salmonoid)	3 x 4 = 12
Site access	Damage by unauthorised visitors-spillages etc considered.	2 x 3 = 6
Cleaning of tools and equipment	Can cause contamination of ground and water	3 x 4 = 12

➤ **PLANT MAINTENANCE**

ASPECTS & IMPACTS	COMMENTS	SCORES F x S = C
Surface water runoff	Oil/ leaks can enter surface runoff	2 x 4 = 8
Ground contamination.	As above	2 x 4 = 8
Waste oils, tyres,	Waste segregated and adequately disposed of	2 x 4 = 8
Use of oils and chemicals	Resource usage	2 x 4 = 8
Noise	Noise from traffic, equipment etc considered. Disturbance of fauna, neighbours and damage to utilities considered.	4 x 3 = 12
Use of fuel - Fuelling protocol Use of bowser Spillages-kits/ bunds and drip trays	Spill contained by adequate controls and storage (check this)	4 x 3 = 12
Hazardous materials	Hazardous waste controlled-oils not mixed in-use registered contractor	2 x 5 = 10

➤ EXCAVATION

ASPECTS & IMPACTS	COMMENTS	SCORES F x S = C
Piling	Damage to flora, fauna, archaeology.	N/a
Water entering excavations	Contamination by oil etc considered low	4 x 4 = 16
Groundwater contamination	From wastes	3 x 4 = 12
Archaeological finds	Competent body notified work stopped.	2 x 4 = 8
Odours	Odours can occur-work stopped if deemed dangerous.	2 x 3 = 6
Dust	dust minimised.	4 x 3 = 12
Use of plant and vehicles-resources	Can cause noise and vibration-disruption to ecosystem and nuisance to neighbours and depletion of resources	4 x 4 = 16
Traffic and access routes	Disruption to ecosystem and neighbours	4 x 3 = 12
Spoil from excavations and asbestos.	Adequately disposed of	2 x 5 = 10
Noise- bunding	Noise can disrupt ecosystem and neighbours.	4 x 2 = 8
Site access	Vandalism can cause spillages and damage to ecosystem.	2 x 3 = 6

➤ EARTHWORKS

ASPECTS & IMPACTS	COMMENTS	SCORES F x S = C
Management of materials	Resource usage considered.	4 x 3 = 12
In situ stabilisation	Ground stabilisation ongoing-can cause disruption of ecosystem	N/a
Generation & disposal of waste	Spoil minimised and adequately disposed of	3 x 3 = 9
Contamination near ground works	Contamination minimised.	4 x 4 = 16
Archaeological finds	Finds notified to competent person and work stopped.	2 x 4 = 8
Surface water management	Contamination minimised spillages contained.	4 x 4 = 16
Plant and vehicles.	Noise and disruption	4 x 3 = 12
Noise	Noise, dust and vibration from traffic, equipment etc considered. Disturbance of	4 x 3 = 12

	fauna, neighbours and damage to utilities considered.	
Dust	Noise, dust and vibration from traffic, equipment etc considered. Disturbance of fauna, neighbours and damage to utilities considered.	4 x 3 = 12
Vibration	Noise, dust and vibration from traffic, equipment etc considered. Disturbance of fauna, neighbours and damage to utilities considered.	4 x 3 = 12
Use of oils etc	Resource usage considered	2 x 4 = 8
Site access	Damage by unauthorised visitors-spillages etc considered.	2 x 3 = 6

➤ **OILS AND CHEMICALS**

ASPECTS & IMPACTS	COMMENTS	SCORES F x S = C
Ground contamination.	Spillages of oils etc can occur.	3 x 4 = 12
Water contamination	Spillages of oil etc	3 x 4 = 12
Use of fuel	Resource usage	4 x 4 = 16
Wastes	Waste containers and residual chemicals etc-adequate disposal	3 x 4 = 12
Spillages-damage to ground, water etc	Damage from spillages considered.	3 x 4 = 12
Waste containers.	Waste containers adequately disposed of	3 x 4 =12
Site access	Damage by unauthorised visitors-spillages etc considered.	2 x 3 = 6
Use of chemicals	Use of Sodium hypochloride and Sodium Bisulphite in chlorination process-spillages, dosing and flush out considered.	2 x 4 = 8

➤ **USE OF SMALL PLANT**

ASPECTS & IMPACTS	COMMENTS	SCORES F x S = C
Refuelling protocol	spillages can contaminate ground and water-weekly occurrence minimum.	5 x 4 = 20
Use of oils and chemicals	Resource usages.	3 x 4 = 12
Plant maintenance.	Noise and leaks can occur due to inadequate maintenance.	2 x 4 = 8
Oil leaks.	Contamination of ground and water.	2 x 4 =8
Water contamination.	Spillages can occur.	2 x 4 = 8

Ground contamination.	Spillages of oil etc.	2 x 4 = 8
Noise.	Disturbance of neighbours and ecosystem can occur-use of small plant.	4 x 3 = 12
Vibration.	Disturbance of neighbours and ecosystem can occur-use of small plant.	4 x 3 = 12

IMPACT RISK ASSESSMENT

Please identify all specific hazards in the work area and match the appropriate measure to control risk. Confirm control measures with Risk factor Calculation

<u>Aspects</u>	<u>Impacts</u>	<u>Risk Rating</u>	<u>Control Measures</u>	<u>Resultant Risk Rating</u>
General Waste	Increase in landfill sites due to increase in waste. This therefore leads to the takeover of land and reduced available living or farming availability. Inappropriate disposal may lead to legislative non-compliance	3x4=12	By bringing to site exact amount of materials needed to complete the project. Waste controls will be dealt with onsite by ensuring adequate provisions for the segregation of waste. Employing a licenced waste carrier contractor as part of the project to remove waste in a responsible manner.	3x2=6
Hazardous Waste	Ground & water contamination as a result of incorrect hazardous waste disposal. Inappropriate disposal may lead to legislative non-compliance	4x4=16	Hazardous waste is stored safely and securely prior to collection (i.e COSHH material, fluorescent tubes etc. are handled carefully to ensure prior to collection by an approved, specialised contractor for removal from site and disposal).	4x1=4
Light Pollution (24hr operation)	Light impact to local residents and local wildlife	3x3=9	Restricted working hours (i.e. during the day) as stated in the construction phase plan	3x1=3
Noise Pollution (24hr operation)	Noise impact to local residents and local wildlife	4x3=12	Due to the environment in which the organisation operates, noise control is typically limited to Personal Protective Equipment (PPE), control of operation hours (i.e during daylight hours), acoustic barriers if required, and the most up-to-date tooling is used and regularly inspected / maintained on site to ensure they are operating safely and efficiently	3x1=3

Vehicle Storage & Use	Ground / water / air pollution as a result of spillages and releases from poorly maintained vehicles. Inappropriately parked vehicles	5x4=20	Designated areas to park vehicles identified on the site plan. Regularly inspect and maintain vehicle(s) to prevent	5x1=5
	may lead to restricted access for emergency services or evacuation. Increased mileage and driving resulting in increased fuel consumption and reduced air quality		leakages. Reduce air emissions, wherever possible by encouraging telephone conference calls for meetings as opposed to travelling. W&B provides accommodation close to the construction site to all staff to encourage the reduction of carbon emissions (air pollution)	
Plant & Material Storage	Ground / water / air pollution as a result of spillages and releases from inappropriately stored or poorly maintained plant. Also resulting in possible access restrictions for emergency services/ evacuation. Poorly stored plant /materials can increase fire risk.	5x4=20	All plant and equipment regularly inspected and maintained to reduce spillages and leaks. Designated parking areas / storage areas for plant & material storage as identified at start of project	5x1=5
Purchasing Materials	Increase in air emissions as a result of sourcing materials from suppliers based a significant distance from the project and by placing numerous small orders instead of one big order. Increased waste stream (excess materials) as a result of over ordered.	3x3=9	Materials purchased from local suppliers and consolidated into 1 big order, wherever possible to reduce the carbon emissions used during deliveries. Any materials no longer required for the project to be stored in the company storage yard (if possible) and used on future projects	3x1=3
Disturbance to Flora & Fauna	Disturbance of flora & fauna during project activities. Potential spillages of chemicals / fuel from tools / plant used. Potential interaction with non-indigenous species (such as Japanese Knotweed Knotweed)	3x4=12	Identified primarily by client in the pre-construction information CEMP and survey carried out if an issue arises during project. Competent contractors used if removal required	3x1=3

Disturbance to Wildlife	Disturbance to wildlife during project activities due to poorly controlled works resulting in direct influence on protected species (such as badgers & bats).	3x4=12	Identified primarily by client in the pre-construction information CEMP and survey carried out if an issue arises during project. Competent contractors used if removal required.	3x1=3
Contamination of Land	Contamination caused from leaks and spillages that are allowed / left to soak into the ground.	2x5=10	Survey carried out to identify areas of concern, competent contractors used if removal is required.	2x2=4

Archaeological Disturbance	Disturbance / damage of items of historical interest caused by noise & air pollution and collision	1x5=5	Areas of archaeological / historical interest are identified prior to commencement of works. Areas are surrounded with barriers and in certain cases protected with plastic sheeting whilst works are carried out to the surrounding areas. Regular monitoring of air quality and noise are carried out to ensure that contaminants and vibration do not cause damage to the archaeology	1x1=1
Air Emissions from Plant Use	Degradation of local air quality from use of diesel plant	5x4=20	All plant and equipment is maintained or hired with appropriate certification, Local Exhaust Ventilation (LEV) used as required	5x1=5
Electricity use	Increased air pollution from production CO ₂	2x4=8	Use of modern energy efficient equipment, switch off lights or have lights on motion sensors, switch off computers when not in use	2x1=2
Gas use	Increased air pollution (CO ₂) from the use of a gas boiler to heat water in the welfare area	5x4=20	Gas boiler limited to the boiling of water for welfare requirements. Boiler routinely serviced and inspected	5x1=5

Paper use	Increased use of paper has direct effect on waste amounts and high energy consumption from printing.	5x3=15	Paper use encouraged to be kept at a minimum due to the type of business, paper use is unavoidable because of project plans, safety files, etc	5x1=5
Purchasing of equipment / vehicles	Increased energy consumption and/ air pollution, etc. due to the incorrect selection of type / size / age and performance of vehicle / equipment	3x4=12	Lease / purchase a hybrid and / or low emission vehicle. Ensure that regular inspection & maintenance of the vehicle is carried out. Purchase new, more energy efficient equipment and switch off when not in use to assist in the reduction of energy consumption.	3x1=3
Landscaping	Disturbance of wildlife / flora /fauna due to landscaping activities. Potential spillages of chemicals / fuel from tools used. Potential interaction with non-indigenous species (such as Japanese Knotweed)	3x4=12	Works carried out by a competent sub-contractor that has assessed the risks and produced Risk Assessment and Method Statements prior to work commencing. Liquid Petroleum Gas (LPG) tools used for the works to ensure fewer emissions released to the atmosphere. Where chemical usage is required, the Eco-friendly type are used.	3x1=2=6
Car Parking	Ground & water pollution caused by spillages and releases from poorly maintained vehicles. Restricted access for emergency services by parking in unauthorised areas	2x4=8	All vehicles are subject to regular inspection & maintenance. Designated parking areas are identified for considerate and safe parking.	2x1=2





