

Havant Thicket Reservoir

Construction Environment Management Plan

Phase 1 - Northern Access Route and B2149 Junction
Works



REPORT

Havant Thicket Reservoir Scheme

Construction Environmental Management Plan – Phase
1 - Northern Access Route and B2149 Junction Works

Client: Future Water

Reference: PC2625-RHD-P1-XX-RP-Z-0001

Status: S0/P01.03

Date: 20 September 2022

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Document title: Havant Thicket Reservoir Scheme

Subtitle: Construction Environmental Management Plan – Phase 1 Works
Reference: PC2625-RHD-P1-XX-RP-Z-0001
Status: P01.03/S0
Date: 20 September 2022
Project name: Havant Thicket Reservoir Scheme
Project number: PC2625

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Revision history

Revision	Date	Description	Prepared	Checked	Approved
P01.01	01/08/22	Draft	K. Emezi	C. Goodman	C. Smith
P01.02	08/08/22	Final	K. Emezi	C. Goodman	C. Smith
P01.03	20/09/22	Final (Design Guardian comments addressed)	K. Emezi	C. Goodman	C. Smith

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1 INTRODUCTION

1.1 Purpose of the Report

- 1.1.1 In 2020, planning applications (reference *APP/20/00990* and *51680/001*) were submitted to Havant Borough Council (HBC) and East Hampshire District Council (EHDC) for permission to develop a reservoir for raw water storage with a minimum storage capacity of 8,700 million litres. Planning permission was subsequently granted in October 2021 subject to conditions and including full permission for a new road junction off the B2149 to facilitate access north of the reservoir site and an outline permission for an access route from the northern junction to the location of the visitor car park in the north-west of the reservoir site (herein referred to as the Northern Access Route).
- 1.1.2 This Construction Environmental Management Plan (CEMP) has been prepared on behalf of Future Water for the Phase 1 works at Havant Thicket (as described in **Section 1.3** below). The Northern Access Route construction work package forms the Phase 1 works of the project. However, for purposes of environmental management, the B2149 Junction is also considered within the Phase 1 CEMP.
- 1.1.3 This document is required to partially discharge Condition 5. This planning condition states that:

Table 1-1: Condition 5 - Construction Environmental Management Plan

Condition 5	Where Addressed
No phase of the development approved under Condition 4 shall commence until a phase specific Construction Environmental Management Plan for that parcel has been submitted to, and approved in writing by, the Local Planning Authority.	This version of the CEMP is for the Phase 1 works as defined in the Phasing Plan (<i>HTR-MRW-PP-v1</i>) and Section 1.3 below.
The CEMP shall be based upon, and be in broad accordance with, Volume 4 Appendix A2.1 of the application Environmental Statement (Outline Environmental Management Plan).	An earlier version of the CEMP has been produced for the Enabling Works Phase.
The CEMP shall demonstrate that the risk to controlled waters will be appropriately managed and include both temporary and permanent construction features and detail information on locations of proposed techniques such as cofferdams, culverting and piping and the associated flood risks and mitigation measures.	Paragraphs 9.1.1 and 9.1.2., The Phase 1 Works Construction Method Statement (<i>HTR-MRW-CMS-v1.1</i>) will be updated to provide further details as the temporary and permanent works designs are developed. Ordinary watercourse consents and permits will be applied for from the Environment Agency (EA) for the various phases of works as required.

Condition 5	Where Addressed
The development shall be carried out strictly in accordance with the approved details.	The Phase 1 Works Construction Method Statement (<i>HTR-MRW-CMS-v1.1</i>) will be updated to provide further details as the temporary and permanent works designs are developed.

1.1.4 This document details only the additional activities required for the Phase 1 works at Havant Thicket associated with the Havant Thicket Reservoir Project ('the scheme') and the B2149 junction works. Updates to this plan will be prepared for subsequent construction phases and following any design or method change. *Appendix B* shows the Phasing Plan layout.

1.1.5 The CEMP will remain a live document, being reviewed and updated as required. Each updated CEMP will be submitted to HBC and EHDC for approval prior to the start of each phase of construction.

1.2 Record of Environmental Actions and Commitments

1.2.1 The planning permissions were granted on the basis of a number of environmental actions and commitments made in the Environmental Statement which accompanied the planning applications. The Record of Environmental Actions and Commitments (REAC) captures these actions which are required to be adhered to, at the pre-construction, construction and operation stages. Table 1.2 below details those REAC commitments that are required to be adhered to during construction and which are set out within this document.

Table 1-2: REAC Commitments

REAC Commitment ID	Requirement / Summary of Commitment	Where Addressed
AQ1	Dust Mitigation.	Dust Management Plan (HTR-MAINWORKS_Ph1-DMP-v1.1), Appendix A.
B3	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.	- Section 7 - EW Phase CEMP (PC2625-RHD-ZZ-RP-Z-0001-HTR-EW-CEMP)
B6	Install protective fencing (high visibility or HERAS) at the edge of the working area, including protecting all retained woodland, scrub and grassland areas and a 15 m buffer zone around all ancient woodlands where practicable, and with expert arboricultural advice where work is required within 15m, and maintain throughout construction.	- Paragraph 7.2.3 - Arboricultural Impact Assessment and Arboricultural Method Statement (HTR-ATK-ZZ-ZZ-RP-Z-0167)
B9	Identify and action opportunities to use Ancient Woodland (AW) soils for habitat creation.	Framework Soil Management Plan (HTR-ATK-ZZ-ZZ-RO-Z-0166)
B12	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.	- Section 7.2 - Arboricultural Impact Assessment and Arboricultural Method Statement (HTR-ATK-ZZ-ZZ-RP-Z-0167)
B22	Felling methods to minimise risks to individual bats will be followed as set out in the bat licence method statement (for roost trees) and (for non-roost trees) a Precautionary Method of Working. These will set out timing and methods of working.	No tree felling anticipated during works

	Inclusive of any bat boxes required under the licence, at least one bat box will be erected for each tree with high or moderate bat potential that is felled.	
B23	Mitigation will be provided for lighting during construction and operation. Any temporary lighting required during construction will be designed to minimise light spill.	Section 3.4
B24	Vegetation clearance and tree felling methods to minimise risks to individual dormice will be followed as set out in the dormouse licence method statement. This will set out timing and methods of working.	No vegetation clearance or tree felling anticipated during works
B27	Protection of badgers - Precautionary pre-clearance survey will be undertaken at areas of suitable habitat. Vegetation clearance in these areas will follow a Precautionary Method of Working.	No vegetation clearance anticipated during works
B28	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.	No vegetation clearance anticipated during works
B34	The detailed Biodiversity Mitigation and Compensation Strategy will set out monitoring requirements, which will be transposed into the long term EcMP. These will include habitat monitoring to inform management decisions and may also include targeted key species monitoring.	Not applicable during Phase 1 works
B35	Monitoring requirements will be met, as set out in the bat and dormouse licences.	Not applicable during Phase 1 works
B15	Prevention of pollution to watercourses.	Sections 9.1.1 and 9.1.2
GC1	To prevent injury/death to on-site human health receptors and/or damage to property receptors associated with potential discovery of unexploded ordnance (UXO).	- Section 11: Incident and Emergency Planning - EW Phase CEMP (PC2625-RHD-ZZ-RP-Z-0001-HTR-EW-CEMP)

GC2	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.	- Section 9: Water - EW Phase CEMP (<i>PC2625-RHD-ZZ-RP-Z-0001-HTR-EW-CEMP</i>)
GC4	Re-use of materials on site.	Not applicable for the Phase 1 works – a materials management plan will be prepared for the main reservoir works
GC5	To effectively manage the re-use of waste soils/materials across the Scheme during construction.	Not applicable for the Phase 1 works
GC6	To reduce soil erosion and compaction during construction works.	- Section 10 - EW Phase CEMP (<i>PC2625-RHD-ZZ-RP-Z-0001-HTR-EW-CEMP</i>) - Framework Soil Management Plan (HTR-ATK-ZZ-ZZ-RO-Z-0166) - Dust Management Plan (HTR-MAINWORKS_Ph1-DMP-v1.1)
GC7	To reduce ground stability hazards and protect structures from compaction/ settlement and leakage.	The Phase 1 Works Construction Method Statement (<i>HTR-MRW-CMS-v1.1</i>)
GC8	Re-use of mineral resources on site.	Not applicable for the Phase 1 works
HE3	Limitation of impact to as-yet unknown archaeological remains.	The Phase 1 Works Construction Method Statement (<i>HTR-MRW-CMS-v1.1</i>)
LV1	Limit damage to existing trees, shrubs, hedges and other significant vegetation to be retained.	Arboricultural Impact Assessment and Arboricultural Method Statement (<i>HTR-ATK-ZZ-ZZ-RP-Z-0167</i>)
LV2	Limit impacts on existing vegetation.	- Section 7 - The Phase 1 Works Construction Method Statement (<i>HTR-MRW-CMS-v1.1</i>)

LV3	Definition of working area prior to commencement of construction and fencing.	- Section 3 - The Phase 1 Works Construction Method Statement (<i>HTR-MRW-CMS-v1.1</i>)
LV4	No vegetation or trees other than those indicated on the site clearance plans, should be removed, or pruned with the prior agreement with the ECoW.	Section 7
LV5	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.	Framework Soil Management Plan (<i>HTR-ATK-ZZ-ZZ-RO-Z-0166</i>)
LV6	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.	- The Phase 1 Works Construction Method Statement (<i>HTR-MRW-CMS-v1.1</i>) - Arboricultural Impact Assessment and Arboricultural Method Statement (<i>HTR-ATK-ZZ-ZZ-RP-Z-0167</i>)
LV7	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.	Not applicable for the Phase 1 works
LV8	Mitigation planting and seeding is to be implemented in advance or as soon as is possible following completion of each area, section or phase of works. This is to ensure any temporary period of effects is reduced and mitigation planting has longer to establish before completion of the works	Not applicable for the Phase 1 works
LV9	A five-year aftercare period for all soft landscaping to ensure successful establishment	Landscape and Ecology Management Plan (<i>HTR-ATK-ZZ-ZZ-RP-L-0002</i>)
NV1	Limitation and control of noise emissions	- Section 5 - Noise and Vibration Management Plan (<i>HTR-EW-NVMP-v1.3</i>)

NV2	Use of temporary noise screens or enclosures around particularly noisy activities	- Section 5 - Noise and Vibration Management Plan (HTR-EW-NVMP-v1.3)
NV3	Avoid night-time works where possible	No night-time works anticipated for Phase 1
NV5	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	Noise and Vibration Management Plan (HTR-EW-NVMP-v1.3)
TT1	Prepare a Construction Traffic Management Plan to manage the impact of HGV traffic on the highway network.	Construction Traffic Management Plan [CTMP] (<i>Havant Thicket-MRW-CTMP-v1.2</i>)
TT2	Manage hours of working to avoid the import or export of goods and materials to avoid network peak hours	Construction Traffic Management Plan (<i>Havant Thicket-MRW-CTMP-v1.2</i>)
TT3	Utilise the Strategic Road Network where possible for the import and export of goods and materials.	Construction Traffic Management Plan (<i>Havant Thicket-MRW-CTMP-v1.2</i>)
TT4	Utilise the northern access where practicable for the import and export of goods and materials.	- Section 4 - CTMP (<i>Havant Thicket-MRW-CTMP-v1.2</i>)
TT5	Develop alternative routeing strategy for PRow	- Section 4 - CTMP (<i>Havant Thicket-MRW-CTMP-v1.2</i>) - Access and Recreation Strategy (HTR-ATK-ZZ-ZZ-RP-Z-0165)
TT6	Develop a construction travel plan to maximise opportunities for staff travel to and from the site using modes other than the private car,	Construction Traffic Management (<i>Havant Thicket-MRW-CTMP-v1.2</i>)
MRW1	Design Team to continue to develop the design considering resource efficiency and based on the majority of earthworks materials being sourced from the reservoir site. Principal Contractor to implement the Scheme as set out in the design and planning applications.	Not applicable for the Phase 1 works

MRW2	Principal Contractor to produce a Site Waste Management Plan (SWMP) with planned waste management for forecast wastes and monitoring of actual waste management during construction including the waste codes, quantities and destination of wastes removed from the site.	Not applicable for the Phase 1 works
MRW3	Principal Contractor to consult with the Environment Agency regarding proposed approach to reuse of excavated materials, as set out in the Materials Management Strategy (ref. HTR- ATK-ZZ-ZZ-RP-Z-0139), and produce a Materials Management Plan (MMP) in accordance with CL:AIRE Definition of Waste: Development Industry Code of Practice.	Not applicable for the Phase 1 works.
MRW4	Excavated materials from the reservoir site and access road(s) that are chemically and geotechnically suitable for use will be reused on-site—preventing the generation of excavation wastes that need removal and management off-site.	Not applicable for the Phase 1 works
MRW5	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.	Not applicable for the Phase 1 works
MRW6	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.	Not applicable for the Phase 1 works
W1	Water protection measures	Sections 9.1.1 and 9.1.2
W2	To protect watercourses and groundwater from construction related pollution risk	Drainage Management Plan (HTR-ATK-XX-ZZ-RP-Z-0004)
W3	To protect watercourses and groundwater from construction related pollution risk	Not applicable for the Phase 1 works
W4	Construction flow management measures around the dewatering of the area within the footprint of the reservoir to ensure the waters from the headwaters are captured and diverted around the site and fed into the	Not applicable for the Phase 1 works

	top of the Riders Lane Stream downstream of the footprint with proper attenuation and flow management in place, notably to not allow the stream to dry up; and prevent peak flows.	
W5	There will be no water discharges into the Park Lane Stream catchment. All water will be channelled to the head of Riders Lane Stream where flow and quality will be controlled.	Not applicable for the Phase 1 works
W6	Habitats in new toe drains and ditch diversions (for watercourses draining to the River Lavant) will be improved to increase their ecological potential to provide habitats to a wider range of species than they are expected to contain at the moment.	Not applicable for the Phase 1 works
EC1	Materials will be sourced onsite as far as possible. Where this is not possible, local materials will be used. The overall volumes of material needed will be minimised through lean design and 'soft' engineering approaches.	Not applicable for the Phase 1 works
EC2	Passive level controls will be used where possible, and electricity consumption in the control house will be minimised by provision of water and dissolved oxygen monitoring.	Not applicable for the Phase 1 works
EC3	The visitor centre will achieve net zero carbon in operation, using the London Energy Transformation Initiative (LETI) Climate Emergency Design Guide approach. A living roof will be used to sequester carbon. Sustainable transport options will be promoted through provision of footpaths and cycle paths.	Not applicable for the Phase 1 works
VCC1	Maintain multiple access routes to working areas where possible.	Not applicable for the Phase 1 works
VCC10	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.).	Not applicable for the Phase 1 works

PHH1	Retain existing pedestrian accesses where possible. Maintain safe access through traffic marshalling, traffic management and use of fencing to separate the public from construction activity and traffic.	- Section 4 - Construction Traffic Management Plan (<i>Havant Thicket-MRW-CTMP-v1.2</i>)
PHH2	Keep the public informed on project progress and on the timing and extent of road/footpath/PROW/amenity spaces closures/diversions	- Section 4 - Construction Traffic Management Plan (<i>Havant Thicket-MRW-CTMP-v1.2</i>)
PHH3	Keep the public and residents fully informed of the scale, nature and timing of the works	Construction Traffic Management Plan (<i>Havant Thicket-MRW-CTMP-v1.2</i>)
PHH4	Include electric vehicle charging points within the proposed car park	Not applicable for the Phase 1 works
PHH5	Delineate and/or provide other measures to slow cyclists down to avoid potential conflict points with pedestrians.	Not applicable for the Phase 1 works
PHH6	Reduce the risk of drowning by following Environment Agency guidance and adopting best practice from similar assets including education in local schools on risks of swimming in deep open water and provision of appropriate signage and public safety measures e.g., life rings	Not applicable for the Phase 1 works
PHH7	Introduce additional traffic calming to discourage visitors and operational traffic from using the southern access route to enter the reservoir site	Not applicable for the Phase 1 works
PHH8	Identify opportunities to provide work and training	Employment and Skills Plan (HTR-MRW-ESP-v1)
AD4	To mitigate the potential for extreme rainfall to result in a rise in groundwater levels leading to increased spring flows.	Not applicable for the Phase 1 works
AD5	Contractors' method statement in accordance with EA pollution prevention guidance	Not applicable for the Phase 1 works
AD10	Traffic Management Plan to be implemented by the appointed contractor.	Construction Traffic Management Plan (<i>Havant Thicket-MRW-CTMP-v1.2</i>)
AD15	To prevent risk of potential cyber attacks	Not applicable for the Phase 1 works
AD16	To prevent vandalism (fires)	Not applicable for the Phase 1 works

Northern Access Route

- Plant to be used:**

- 1.3.6 Works are proposed to start from the end of the completed spur road leading off of the B2149 road junction. All deliveries will access the works area from this end and works will proceed in a southerly direction, completing defined sections of the road before moving onto the next section.

B2149 Junction:

- Set up traffic management: 2-way temporary lights & establish works compound.
- Reduced level excavation of slip lanes using excavator. Stockpiled material to be disposed of offsite.
- Excavate to form new ditches and install drainage.
- Install new gullies, check dams and construct headwalls.
- Place type 1 sub-base to formation level. Type 4 recycled sub-base can be used under the Hampshire County Council specification if it is available at the time required.
- Lay new PCC kerbs on ready-mix concrete bed.
- Install road closure.
- Plane off existing surfacing. Planings to be disposed of, off site.
- Install new cross carriageway drainage.
- Form new islands in carriageway.
- Lay new carriageway surfacing.
- Apply white lining and install new cat's eyes.
- Install new signage.
- Landscaping.

Plant to be used:

- Tracked excavators – varying in size from 3t to 13t
- 6t cabbed swivel dumpers
- Self-contained welfare unit & storage container
- Double banded diesel storage bowser
- PID security units
- Road going tipper & drum concrete mixers
- Road planer
- Road paver
- Smooth drum sit on rollers

1.4 Scope of this Document

- 1.4.1 This CEMP details how the Phase 1 works will be planned, monitored and managed in an environmentally responsible manner. It outlines the management framework for the environmental requirements, commitments, and performance targets associated with the planning and implementation of this phase of the project.
- 1.4.2 This CEMP should be read in conjunction with the previously produced Enabling Works (EW) Phase CEMP (*PC2625-RHD-ZZ-RP-Z-0001-HTR-EW-CEMP*), as information within this previous document remain relevant to this

phase of the project. This CEMP refers to a number of management plans, which have been produced to enable the partial discharge of specified planning conditions. Collectively, these plans incorporate all mitigation measures relevant to this phase of the project. The Phase 1 CEMP should therefore also be read in conjunction with the documentation submitted to partially discharge the below listed conditions. Information provided in these documents is summarised in the CEMP where appropriate:

- Condition 4: Phasing Plan (5311-xx – see *Appendix B*)
- Condition 6: Construction Method Statement (*HTR-MRW-CMS-v1.1 – see Appendix D₁*)
- Condition 9: Construction Noise and Vibration Management Plan (*HTR-EW-NVMP-v1.3*)
- Condition 10: Revised and updated assessment of potential construction noise and vibration (*HTR-EW-NVMP-v1.3*)
- Condition 12: Construction Traffic Management Plan (*Havant Thicket-MRW-CTMP-v1.2 – see Appendix D₂*)
- Condition 21: Archaeological Management Plan, prepared by Atkins
- Condition 22: Written Scheme for the Programme of Archaeological Mitigation, prepared by Atkins
- Condition 23: Written Scheme for Recording all Historic Assets, prepared by Atkins
- Condition 27: Tree Survey, Updated Arboriculture Impact Assessment (including a Tree Constraints Plan), Arboricultural Method Statement and Tree Protection Plan, (*HTR-ATK-ZZ-ZZ-RP-Z-0167*)
- Condition 28: Landscaping Details and Landscape Management Plan, prepared by Atkins
- Condition 29: Renewable Energy Strategy, prepared by Atkins
- Condition 32: Flood Risk Strategy, prepared by Atkins
- Condition 36: *Northern Access Road – Ecological Mitigation, Compensation and Enhancement Measures (HTR-ATK-XX-XX-RP-Z-0069)*

- Condition 39: Framework Soil Management Plan (HTR-ATK-ZZ-ZZ-RO-Z-0166), prepared by Atkins

1.5 Programme of Works

- 1.5.1 It is anticipated that the Phase 1 works will commence in Q4 2022 with the first activity being the site establishment and security fencing. The works are expected to be completed in approximately 8-10 weeks.

1.6 Working Hours

- 1.6.1 The construction working hours for Phase 1 works will be as follows:

- 07:00 – 18:00 Mondays to Fridays
- 07:00 – 13:00 Saturdays
- No work on Sundays, Bank Holidays and Public Holidays unless specifically approved. There will be no night-time working.

2 Environmental Management Framework

2.1 Structure and Responsibilities

- 2.1.1 This CEMP addresses those environmental matters within the responsibility of Portsmouth Water and Future Water (the contractors), who are engaged on its behalf to deliver the Phase 1 Works. While overall responsibility for compliance with environmental and approvals requirements will remain with Portsmouth Water, Future Water are accountable for undertaking the construction activities in line with the requirements of this CEMP as well as all legal and other requirements imposed via permits and licences. All contractors delivering this phase of works confirm that this is the case.

Produced by: Royal HaskoningDHV

Accountable and Signed-off by: Portsmouth Water

Consulted with: Future Water

Distributed to: Portsmouth Water, Future Water, Environmental Managers and Subcontractors.

2.2 Training, Awareness and Competence

Internal Communication

- 2.2.1 All staff and sub-contractors working on site will be required to attend a site induction prior to commencing work. This will cover the key environmental aspects relating to the project and the roles and responsibilities of individuals.
- 2.2.2 Toolbox talks will be undertaken by the Health, Safety, Environment and Wellbeing (HSEW) Manager or other nominated personnel throughout the project. The aim will be to communicate information to all staff and serve to educate, prompt and remind them of their responsibility to protect the environment during construction activities.
- 2.2.3 Additional details on staff training and awareness are provided in the EW Phase CEMP (*PC2625-RHD-ZZ-RP-Z-0001-HTR-EW-CEMP*).
- 2.2.4 Monthly progress meetings will be used to disseminate the results of monitoring and audit reports. At these meetings, a review of the environmental performance throughout the site to date will be undertaken and any improvements required during the construction phase will be identified. Details of where sustainable approaches to construction have been implemented or developed as the work proceeds will also be discussed and recorded. Their suitability for implementation at other areas of the site will be considered and applied where appropriate. Decisions about amendments required to the processes and procedures will also be agreed.

External Communication

- 2.2.5 For Phase 1, Portsmouth Water will lead communications and consultations with members of the public, adjacent landowners, local residents, businesses and the local sub-group committees established in accordance with Portsmouth Water's Stakeholder Management Plan.
- 2.2.6 The Stakeholder Management Plan includes provision for a number of sub-group committee meetings including an Environment Sub-Group meeting, which are open to a select group of people with interests to attend. These forums provide a mechanism to provide project updates and to exchange feedback on all project matters including environmental matters.

2.3 Monitoring of Compliance

- 2.3.1 All construction and installation activities for Phase 1 works will be supervised daily by Future Water's Construction Manager with the support of members of their teams, using the same procedures as detailed in the EW Phase CEMP (*PC2625-RHD-ZZ-RP-Z-0001-HTR-EW-CEMP*).

2.4 Complaints Procedure

- 2.4.1 The implementation of the systems and procedures to protect the environment will, if implemented effectively, reduce or remove the risk of an environmental incidents and/or exceedance of established thresholds. However, complaints may still be received and in this event, an established complaints procedure will be implemented.
- 2.4.2 All comments and/or complaints are reported via the Portsmouth Water head office (see *Appendix C* for a copy of the contact card). Any comments or issues/complaints raised will be logged and investigated within 24 hours of receipt. The issues/comments will also be tracked to ensure they are closed out as soon as practicably possible.
- 2.4.3 Future Water and Portsmouth Water's communication managers will work together to ensure implementation of the complaints procedure. The site management team will be responsible for dealing with any urgent issues on a day-to-day basis and will be the point of contact on site.

3 Site Description

3.1 Fencing and Site Security

- 3.1.1 Future Water will have the day-to-day responsibility for maintaining Health and Safety throughout the Phase 1 Works. Task specific risk assessments and method statements will detail security measures during the works and a Security Plan will be included as part of the main works construction phase Health & Safety Plan
- 3.1.2 Site fencing will be erected to secure works areas from access by the general public. The site fencing will also prevent unauthorised access by construction personnel beyond the demarcated works areas.

3.2 Site Layout and Compounds

- 3.2.1 The site layout and compounds drawings are detailed in the Phase 1 Construction Traffic Management Plan (*Havant Thicket-MRW-CTMP-v1.2*)

3.3 Welfare Facilities

- 3.3.1 The welfare and office facilities for the Phase 1 works will be provided within the site compound, located to the east of the Northern Access Route in proximity to the working area, as shown in **Figure 1**.

3.4 Lighting

- 3.4.1 In determining the lighting arrangement on site, consideration will be given to sensitive receptors that may experience a nuisance by light.
- 3.4.2 The site compound for the Phase 1 works will cover a small area, with low level LED lighting only provided on the welfare unit.
- 3.4.3 It is not expected that works will be undertaken after sunset and therefore the use of high-level tower floodlights will not be employed.

3.5 Materials Storage

- 3.5.1 On-site materials storage areas will be designated and maintained away from the existing carriageway. The storage area will contain fire points and spill kits.
- 3.5.2 Material storage will be contained outside of designated Root Protection Areas and not within any Construction Exclusion Zones (CEZ) marked by tree protection fencing in accordance with the Arboricultural Impact Assessment and Arboricultural Method Statement (HTR-ATK-ZZ-ZZ-RP-Z-0167).
- 3.5.3 Excavated material which cannot be re-used on site will be stockpiled prior to collection and disposal at a licenced facility.
- 3.5.4 The storage area will be enclosed and appropriately bunded and will be used as Control of Substances Hazardous to Health (COSHH) storage area for the Phase 1 works.
- 3.5.5 Fuel will be stored in accordance with The Control of Pollution (Oil Storage) (England) Regulations 2001 and will be located more than 10m from watercourses or drainage channels. All static fuel tanks and bowsters will be double bunded storage. These will have a primary container manufactured with integral secondary containment that holds a minimum of 110% of the volume of the inner tank. The locations of storage areas will be contained within the site compound as shown on *Figure 1: General Arrangement of Works*.

3.6 Wheel Washing Facilities

- 3.6.1 Wheel washing facilities will not be required for the Phase 1 works as no road going vehicles will be taken off hard surfaced roads.
- 3.6.2 Road sweepers will be employed, should vehicles need to be taken “off road” to maintain the cleanliness of the highway.

3.7 Site Housekeeping

- 3.7.1 The implementation of a good site housekeeping policy is key to reducing the likelihood of accidents and environmental pollution incidents. Good housekeeping measures will be implemented on site regularly and will remain part of the site induction process. Site cleanliness checks will be included within the site inspection regime.

4 Traffic

4.1 Construction Traffic Management Plan (CTMP)

- 4.1.1 A Construction Traffic Management Plan has been prepared for Phase 1 (*Havant Thicket-MRW-CTMP-v1.2*) to partially discharge Condition 12. The CTMP contains a range of measures for the management of traffic and transport.

Parking and Employee Trips to Site

- 4.1.2 To reduce the number of employee vehicle movements to the site, the CTMP outlines travel plan measures appropriate to the scope of works, and number of workers. These travel plan measures include vehicle sharing and use of public transport to access the site.

HGV Deliveries to Site

- 4.1.3 It is anticipated that the demand for deliveries for the Phase 1 works, including timings, measures and monitoring processes as detailed in the Phase 1 CTMP will be appropriately managed within the defined parameters of the Phase 1 CTMP.
- 4.1.4 A dedicated logistics manager will be appointed and will be responsible for the control of vehicle movements on and off-site with the support of their team of security officers and vehicle marshals.

Pedestrians and Cyclists

- 4.1.5 Where existing footpaths or PRow cross or interface with construction traffic, warning signage and designated points will be formed to allow pedestrians to safely cross construction traffic routes.

- 4.1.6 Segregated pedestrian walkways & access points will provide safe routes for pedestrians to access the site.

5 Noise and Vibration Management Plan (NVMP)

- 5.1.1 The Phase 1 works will involve activities with the potential to cause noise disturbance, for example, the movement of vehicles on site. A noise assessment is included in the NVMP (HTR-EW-NVMP-v1.3) to partially discharge Condition 10. It includes details of the noise sensitive receptors, agreed noise limits, monitoring to be undertaken and the mitigation measures to be implemented.

6 Air Quality and Dust Management

- 6.1.1 Measures developed to reduce the impact of construction on air quality and, as part of this, to manage dust, remain unchanged from EW Phase. They are set out in the EW Phase CEMP (*PC2625-RHD-ZZ-RP-Z-0001-HTR-EW-CEMP*).
- 6.1.2 A Dust Management Plan (HTR-MAINWORKS_Ph1-DMP-v1.1) has been prepared for the Phase 1 Works and outlined in *Appendix A* of this CEMP.

7 Ecology

7.1 Protected Species and Precautionary Method of Working

- 7.1.1 The approach to minimising the impact on protected species is described in the EW Phase CEMP (*PC2625-RHD-ZZ-RP-Z-0001-HTR-EW-CEMP*), which remains applicable for Phase 1.
- 7.1.2 A Reptile Management Plan (RMP) was produced for the Enabling Works Phase. This remains applicable for the Phase 1 Works, and the Precautionary Methods of Working outlined within the RMP will be applied.
- 7.1.3 During the Enabling Works Phase, reptile manipulation activities were undertaken to discourage reptiles from entering the site area. This requirement is to be maintained to ensure the site area remains as unsuitable areas of habitat for reptiles.
- 7.1.4 A pre-construction botanical survey has been undertaken along the existing forestry access track to map the locations of notable and noteworthy species to ensure their protection in situ where possible or where not possible, salvaged and relocated.

- 7.1.5 Similarly, all other ecological requirements for the Phase 1 Works have been completed by Portsmouth Water under a separate contract as detailed within the *Northern Access Road – Ecological Mitigation, Compensation and Enhancement Measures (HTR-ATK-XX-XX-RP-Z-0069)*.
- 7.1.6 Access beyond the demarcated working areas will not be allowed for machinery, site construction personnel or for storage.
- 7.1.7 As part of ecological compensation measures, bat boxes have been installed on trees adjacent to the Northern Access Route, including on one tree which may require crown lifting and others which may be subject to disturbance during the Phase 1 Works. Therefore, Future Water will ensure that construction related disturbance will be kept to a minimum in the vicinity of the bat boxes.
- 7.1.8 Tool box talks will be given to all site personnel prior to the start of works to inform them of the presence of bats, the legislation relating to bats, measures that will be used to protect them, good working practices, licensable activities, and what to do should bats be found.
- 7.1.9 Similarly, tool box talks will be provided to all site personnel in advance of construction works, to inform of what action to take in the event that protected species such as great crested newts, breeding birds, hazel dormouse and reptiles are found during construction activities. This will include stopping all activities that may cause harm to the species and contacting the Ecological Clerk of Works (ECoW) immediately.
- 7.1.10 A written record that tool box talks have been undertaken, and that it covers the above points, will be kept by the ECoW.
- 7.1.11 It is not anticipated that steep sided excavations will be required during the Phase 1 Works. However, if these become necessary, the site personnel will ensure the excavations are covered during the night-time or graded sides or ramps are provided to allow any animals that fall in to escape.

7.2 Vegetation Clearance and Tree Protection

- 7.2.1 There is no vegetation clearance required as part of the Phase 1 Works.
- 7.2.2 All tree felling and environmental mitigation works associated with the tree felling have been completed by Portsmouth Water under a separate contract.
- 7.2.3 Fencing to protect the root protection areas of retained trees will be installed in accordance with the recommendations in the Environmental Statement

Volume 4 – Appendices: Appendix A9 Biodiversity, A9.14 Arboricultural Impact Assessment (HTR-ATK-ZZ-ZZ-RP-L-0001) and the Arboricultural Impact Assessment Addendum and Arboriculture Method Statement (HTR-ATK-ZZ-ZZ-RP-Z-0167) report.

- 7.2.4 Site operations likely to cause localised waterlogging such as washing down of vehicles or machinery, handling, discharge, or spillage of substances, including cement washings are not permitted within the CEZ. Other activities such as storage of plant, equipment or materials, vehicular or plant access, mechanical digging, scrapping or excavation shall not be permitted within the CEZ other than those agreed by an arboriculturist.

7.3 Landscaping and Ecological Management

- 7.3.1 A Landscape and Ecological Management Plan (LEMP) has been produced for the Main Works (*HTR-ATK-ZZ-ZZ-RP-L-0002*), which prescribes post-construction management of landscape and ecology features, alongside requirements for compensation measures outside of the construction area. The LEMP also identifies landscape and ecology objectives which are applicable to the Phase 1 area as follows:

- Assist in landscape integration with the existing woodland in the immediate surrounding area
- Provide value for landscape integration and nature conservation and biodiversity
- Provide and maintain suitable fencing and gates for Forestry England boundary in Havant Thicket
- Dead hedging to be integrated with live hedgerow planting to provide a barrier on the north-western boundary of the Site adjacent to the northern access route

8 Historic Environment

- 8.1.1 The Northern Access route will be constructed along a permissible footpath with pedestrian, cyclist and horse riders use, which is previously disturbed ground, with a “no dig” methodology employed between chainage 160 and chainage 1210 of the route. Therefore, the potential for interaction with archaeology in Phase 1 is low. However, should any archaeology be encountered, the principles outlined in the Phase 1 Written Scheme of Investigation (WSI) (*HTR-EW-WSI-2.0*) will be applied.

9 Water Environment

- 9.1.1 Procedures to deal with accidental leakages or spillages of hydrocarbons and oils, or accidental release of hazardous substances during construction works will be established. These will include provision of spill kits on site at all times, and training of operatives on their use.
- 9.1.2 Best practice measures will be adopted 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.

10 Material Resources and Waste

- 10.1.1 Soils will be handled in accordance with the Framework Soil Management Plan (*HTR-ATK-ZZ-ZZ-RP-Z-0166*), and where required, existing ancient woodland topsoil will be removed to storage for re-use.
- 10.1.2 Arisings from reduced level excavation of slip lanes will be stockpiled and disposed of offsite. Stockpiled material will be contained outside of designated Root Protection Areas and not within any CEZ marked by tree protection fencing in accordance with the Arboricultural Impact Assessment and Arboricultural Method Statement (*HTR-ATK-ZZ-ZZ-RP-Z-0167*).
- 10.1.3 Planings from existing surfacing will be disposed of offsite.
- 10.1.4 The approach to minimising the impact of waste on the surrounding environment is described in the EW Phase CEMP (*PC2625-RHD-ZZ-RP-Z-0001-HTR-EW-CEMP*), which remains applicable for Phase 1.
- 10.1.5 Delivery and refuelling will be supervised at all times and checks will be made to ensure that the correct type and volume is being delivered. Appropriate pollution mitigation measures (including drip trays and spill kits) will be employed.

11 Incident and Emergency Planning

- 11.1.1 The EW Phase CEMP (*PC2625-RHD-ZZ-RP-Z-0001-HTR-EW-CEMP*) and the associated Future Water's emergence response plans (*HS-F-093* and *HS-F-095*) provide detailed actions that will be taken to minimise the risk of pollution incidents occurring on site and identifies the actions to be taken in

the event of a pollution incident. These procedures remain applicable to the Phase 1 works.

12 Consents and Permissions

12.1.1 This section presents a summary of anticipated consents and permissions required for the Phase 1 Works.

12.1.2 Future Water will ensure all permits, consents and licences are in place prior to commencement of works and will obtain, implement and comply with all permits, consents and licences during the Phase 1 works.

12.1.3 Table 4-1 below therefore presents an outline for the logging of details of any licences or permits required at subsequent stages of the Phase 1 which will be completed by the Environmental Site Manager.

Table 12-1: Permits, Consents and Licence Requirements for the Phase 1 Works

Type of permit, consent, licence and reference	Owner	Issuing authority	Requirement	Summary of condition
Planning consent – reserved matters	Portsmouth Water	HBC/EHDC	Consent to commence this phase of construction	Design of the northern access route submitted in detail
Planning consent – discharge of conditions	Portsmouth Water and Future Water	HBC/EHDC	Consent to commence this phase of construction	The planning conditions relevant to this phase of works are set out in Section 1

Appendix A - Dust Management Plan

Havant Thicket Reservoir

Dust Management Plan

Phase 1 - Northern Access Route and B2149 Junction Works

09/09/2022 | Rev 1.1

Document Reference : HTR-Phase 1 - Northern Access Route and B2149 Junction-DMP-v1.1



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1.0 Introduction

In 2020, planning applications (reference APP/20/00990 and 51680/001) were submitted to Havant Borough Council (HBC) and East Hampshire District Council (EHDC) for permission to develop a reservoir for raw water storage. Planning permission was subsequently granted in 2021 subject to Conditions. The Decision includes full permission for a new road junction off the B2149 to facilitate access north of the reservoir site and an outline permission for an access route from the northern junction to the location of the future visitor car park in the north-west of the reservoir site (herein referred to as the Northern Access Route). Whilst planning consent was received from two authorities, the wording of the decision notices is identical and therefore the same Conditions apply to both permissions.

The Northern Access Route construction work package forms the Phase 1 works of the project. However, for purposes of environmental management, the B2149 Junction is also considered within the Phase 1 CEMP. This Dust Management Plan has been prepared by Future Water MJJV as one component of the Construction Environmental Management Plan (CEMP).

The Dust Management Plan will remain a live document, being reviewed and updated as required in conjunction with the CEMP. The CEMP will be submitted to HBC and EHDC for approval prior to the start of each Phase of construction.

This document outlines the measures to be taken to reduce the generation of dust at Havant Thicket Reservoir during the Works. If not adequately controlled, dust emissions from the works will lead to increases in dust concentrations beyond the site boundary, which may affect local amenity and influence local air quality. This could have a detrimental effect on people's health including the workforce and the local community.

The works currently within the Phase 1 works scope are set out in the CEMP. In summary they include:

Northern Access Route

- Erect fencing to prevent access to the works area
- If required in the specific section, remove existing ancient woodland topsoil from the ground and take to storage for re-use. This process is to be in accordance with the established Soil Management Plan
- Lay geotextile and place type 3 sub-base as required
- Install timber edging
- Install Cellweb and infill with stone
- Place geotextile layer
- Top with 150mm type 3 sub-base
- Place general sub-soil fill to shoulders
- Top shoulders with ancient woodland topsoil

B2149 Junction:

- Set up traffic management: 2-way temporary lights & establish works compound.
- Reduced level excavation of slip lanes using excavator. Stockpiled material to be disposed of offsite.
- Excavate to form new ditches and install drainage.
- Install new gullies, check dams and construct headwalls.

- Place type 1 sub-base to formation level. Type 4 recycled sub-base can be used under the Hampshire County Council specification if it is available at the time required.
- Lay new PCC kerbs on ready-mix concrete bed.
- Install road closure.
- Plane off existing surfacing. Planings to be disposed of, off site.
- Install new cross carriageway drainage.
- Form new islands in carriageway.
- Lay new carriageway surfacing.
- Apply white lining and install new cat's eyes.
- Install new signage.
- Landscaping.

Record of Environmental Actions and Commitments

The planning permissions were granted on the basis of a number of environmental actions and commitments made in the Environmental Statement which accompanied the planning applications. The Record of Environmental Actions and Commitments (REAC) captures these actions which are required to be adhered to, at the pre-construction, construction and operation stages. **Table 1** below details those REAC commitments that are required to be adhered to during construction and which are set out within this document.

Table 1 REAC Commitments

REAC Commitment ID	Objective / Requirement	Where Addressed
AQ1	To limit and control emissions to air during construction to avoid direct and indirect impacts on community and ecological receptors.	This document (Dust mitigation)

The nature of potential dust generation on site may vary, but works are more prone to generate dust when in a dry state and in windy conditions. Control measures will be implemented to control emissions of dust and other emissions to air, and reduce human exposure by:

- Prevention,
- Suppression, and
- Containment.

In addition to the standard mitigation measures specified, additional site-specific measures will also be adopted. The site-specific measures will be determined in consultation with a member of the LPA's Environmental Health / Public Protection team.

2.0 Project Information

Project Name	Havant Thicket Reservoir Enabling Works
Project Number	C1294
Client	Portsmouth Water
Principal Contractor	Future Water MJJV Ltd
Person Responsible for Updating this Dust Management Plan	Geraint Lloyd
Person Responsible for Implementing this Dust Management Plan	Geraint Lloyd (assisted by Site Manager when appointed)
Role in the Project	Contract Manager
Site Address	Land at Swanmore Road, Havant
Programme	The B2149 junction work is programmed for August – early November 2022. The Northern Access Route work is programmed for early November 2022 – mid January 2023

3.0 Distribution & Review

3.1 Distribution

This Dust Management Plan must be kept on site at all times. The controlled copy, held by *Geraint Lloyd* must be available for members of the Jones Bros workforce, principal contractor (where Jones Bros is a subcontractor), subcontractors and the client.

The controlled copy of this Plan is held by:

Name	Position	Company
Geraint Lloyd	Contract Manager	Future Water MJJV Ltd

Each subcontractor must be familiar with the control measures and procedures outlined in this Plan.

Uncontrolled copies of this Plan have been distributed to the following:

Name	Position	Company
Dan Argles	Construction Manager	Future Water MJJV Ltd
Stephen Blunt	Environmental Manager	Future Water MJJV Ltd

3.2 Review

This plan shall be reviewed as often as is required to ensure that it reflects the progress of the project and in any event, not less than every 6 months.

Date	Name	Nature of Changes	Signed
04/08/2022	Stephen Blunt	Initial Draft for Phase 1 scope	
09/09/2022	Stephen Blunt	Amended in response to Design Guardian comments	

4.0 Potential Receptors of Dust

The Havant Thicket Northern Access Works has a number of receptors for any dust pollution. These include:

- Workforce (operatives and staff)
- Farm and wild animals, grazing land and habitats
- General Public using Forestry England Track/Public Rights of Way

The Havant Thicket reservoir site has residential properties to the West, South and East of the site. Properties at the north-eastern corner of Swanmore Road are approximately 1,000m from the closest point of the Access Route (where it terminates). Houses near the B2149 – Castle Road junction are approximately 1,100m from the B2149 Northern Access works, at the closest point. These properties and residents are potential receptors for any dust pollution created on site but in view of the distance, intervening woodlands and time of year it is considered that the risk of noticeable dust at these locations is extremely low.

The prevailing wind direction in this area is from West to East.
The receptor sites for dust are shown on the plan within Appendix 2

5.0 General Controls During Works

5.1 Access and Haul Roads

Access for all site workforce and materials delivery vehicles, as well as all plant and equipment, will be via the Northern access on the B2149, approximately 1km N of the Manor Road – Castle Road junction. The number of movements a day will be managed in accordance with the Transport Management Plan. Delivery routes will be established with all suppliers and they will enter a traffic routing agreement. Suppliers will be sent a map illustrating the access routes that will be followed during the works.

A Construction Traffic Management Plan will be produced and briefed to all persons prior to works.

5.2 Vehicles and Mobile Plant

All vehicles used on site will be regularly maintained to minimise exhaust emissions. All plant and vehicles will follow the traffic management plan. Site speed limits will be limited to 10mph. Site Management will ensure that HGVs leaving site are checked for the presence of mud and/or debris and are covered to keep dust to a minimum. Vehicles leaving the area will be cleaned with a jet wash if required. If this is not suitable then a road sweeper will be employed to maintain the cleanliness of the road.

5.3 Skips/Waste Disposal

Burning of any material will not be permitted on site. As much waste as possible will be recycled and remaining waste will be removed from site in a timely manner using licensed waste removal contractors. Skips containing dusty wastes will be securely covered or sheeted over.

5.4 Stockpiled Materials

Ground materials excavated from the site works will be damp as dug, due to the time of year. They will either be placed directly into road transport for removal from site or placed into short-term stockpiles for a period of no more than a few weeks, until needed. These will be 'sealed' against both rain erosion and dust-blow by tracking over or use of the excavator bucket, so that a surface 'crust' is formed. The materials are predominantly clay and so will not have a loose surface prone to dust mobilisation, unless disturbed.

Aggregate will be imported to site as required during the works and either used directly in the access construction or stockpiled alongside the access until needed. The stockpile locations will be at least 1,000m from residents outside the site, and so the combination of distance and direction makes dust mobilisation and transmission to these receptors very unlikely. Woodlands and grassland near the works are considered to be of low sensitivity to small amounts of mineral dust. The use of temporary sheeting has been considered but discounted due to the very low probability of any nuisance and the impracticality of securing a temporary sheet in wind conditions where dust transmission could occur.

6.0 Specific Operational Controls

The table below provides the prevention measures implemented on site to ensure the risk to dust pollution is reduced. These measures will be implemented as soon as works commence and will be monitored by site management throughout the works.

Emissions to the Atmosphere of Nuisance Dust (Soils)		
Location	Site operation	Prevention Measures
Access route excavation areas	Soil stripping; Excavation and loading of soil materials	- Low risk: material retains some moisture until disturbed, so dust mobilisation unlikely - Avoid overfilling dump trucks so that material is not lost onto road surfaces - Any temporary soil stockpiles to be 'sealed' by surface compaction to minimise potential for dust mobilisation and erosion by rainfall (which generates silt that dries to become easily mobilised dust)
Access route	Plant/vehicle use and material transportation on route within site (soil dust raised by tyres and vehicle exhausts)	- Efficient operation by regular plant/vehicle inspection using SMART check sheets and reporting of dark exhaust fumes or smoke. <u>PFC075 Identifying, Planning & Performing Maintenance, Service, Inspection and Defects Rectification</u> to be followed. - Reduced speed limits on site to reduce dust creation - Do not over-rev vehicle engines when moving position - route to be inspected regularly and maintained to remove loose dust and debris using plant - Water bowser used to dampen any dust that arises - Plant windows to be kept shut with on-board climate control used to prevent dust entering driver's cabin
Carriageway surface, kerbs and hard landscape works	Cement and dusty materials, cutting pre-cast concrete elements	- Observe COSHH storage and handling procedures - Use sheltered locations or suspend operation in windy conditions - Water suppression when hard materials require cutting or planing off
Whole site (internal)	Site vehicle exhaust fumes including particulates and NOx	- Provide modern diesel fuelled plant and especially those with Ad Blue emission treatment systems that convert harmful mono nitrogen oxides into nitrogen and oxygen - Vehicles and plant not to be left idling - Generator to be switched off at the end of the working day
Public roads (external)	Congestion of roads (fumes) 'Track-out' causing dust	- Low risk: all transport via public highway will use the Northern Access point only, remote from residents. Works do not include large-scale movements. Ensure there is a traffic management plan in place to relieve congestion for local community - Ensure dry bulk materials being transported on

		vehicles to and from site are covered to reduce dust pollution to local community Roads to be swept as needed to remove loose dust, and mud which can dry to generate dust
General	Management of operations	- Water bowser and water supply (on-site lagoon) available to dampen any other dust that arises - Monitor air quality using EN-a-004 Air Quality Monitoring Record* when dust/fumes are likely to or have arisen - Monitor whole of site using EN-a-001 Environment Inspection Daily Check* - EN-a-008 ECoW Log* to be completed by Environmental Specialist at a minimum of quarterly - Specific works to have Dust Management Plan within Method Statements, where necessary - Ensure all site staff are aware of the importance of dust suppression through Toolbox Talks - Covers/lids used on waste skips if likely to produce dust in storage * Blank/sample forms presented in Appendix 3
General	Communication	- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager, subject to Portsmouth Water confirmation. - Display the head or regional office contact information. - 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.

Appendices

Appendix 1- Outline Masterplan from Environmental Statement Non-Technical Summary

Appendix 2 – Receptors and Northern Access Works layout



Appendix 3 – Blank / sample record forms



EN-a-004 - Environment - Air Quality Monitoring Record

Project	T0001 – Training Project
Site Address	Ty Glyn Ruthin LL151QW
Mobile User	Kris Sokolowski (KRI002)
Date Submitted	02 Dec 2019 21:50:32 (UTC: +00:00)

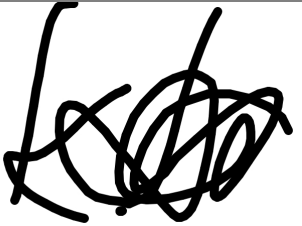
LOCATION DETAILS

Enter location of check on site	
---------------------------------	--

AIR QUALITY MONITORING RECORD

Weather Conditions	Windy
Ground Condition	Dry
Air Quality	Slight Dust
Extent of Dust Spread	Significant Travel
Action Required	Yes
Action Taken	Reduce Vehicle Speeds
Actions/Comments	Now
Action Implemented	No
Any Supporting Photographs	

INSPECTION DETAILS

Inspectors Name	Kris Sokolowski (KRI002)
Inspectors Signature	
Date & Time of Inspection	02 Dec 2019 21:50 +00:00

Appendix B - Phasing Plan

Havant Thicket Reservoir

Detailed Phasing Plan

For Reserved Matters Applications

08/08/22 | v3

Document Reference: HTR-MRW-PP-v3



1.0 - Introduction

In 2020, planning applications (ref APP/20/00990 and 51680/001) were submitted to Havant Borough Council (HBC) and East Hampshire District Council (EHDC) for permission to develop a reservoir for raw water storage. Planning permission was subsequently granted in 2021 subject to Conditions. Whilst planning consent was received from two authorities, the wording of the decision notices is identical and therefore the same Conditions apply to both permissions.

This detailed phasing plan has been prepared by Future Water MJJV for the works at Havant Thicket Reservoir. This document is required to discharge Condition 4 of the permissions. The requirements of Condition 5 and where within this document the requirements are addressed are set out in **Table 1** below.

Condition 4 - Phasing	Where Addressed
<i>Prior to the commencement of development, a detailed phasing plan for the development shall be submitted to and approved by the Local Planning Authority. The development shall be carried out in accordance with the approved phasing plan and no variation shall be made without the prior written approval of the Local Planning Authority.</i> <i>Approval will not be given if in the reasonable opinion of the Local Planning Authority the proposed variations creates new environmental impacts which exceed the range or scale of those measured and assessed in the Environmental Statement (including the further information) and which the Local Planning Authority considers may require further or additional mitigation measures.</i>	<i>Section 1.0 – page 2</i> <i>Pages 3-5</i>

The Phasing Plan will remain a live document, being reviewed and updated as required. Each of these updated plans will be submitted to HBC & EHBC for approval prior to the implementation of any changes.

Explanatory Note:

The programme dates for submission of the reserved matters applications for the individual phases of the development are provided based on the development programme at the date of submission. The dates are given as periods of two quarters (e.g. Q1 – Q2 of 2023) and the target date for submission would fall into this period.

Should the timing for submission differ significantly then a variation to the Phasing Plan would be submitted for re-approval, however as an example, a submission one quarter earlier or later would not trigger the need for the phasing plan to be re-submitted.



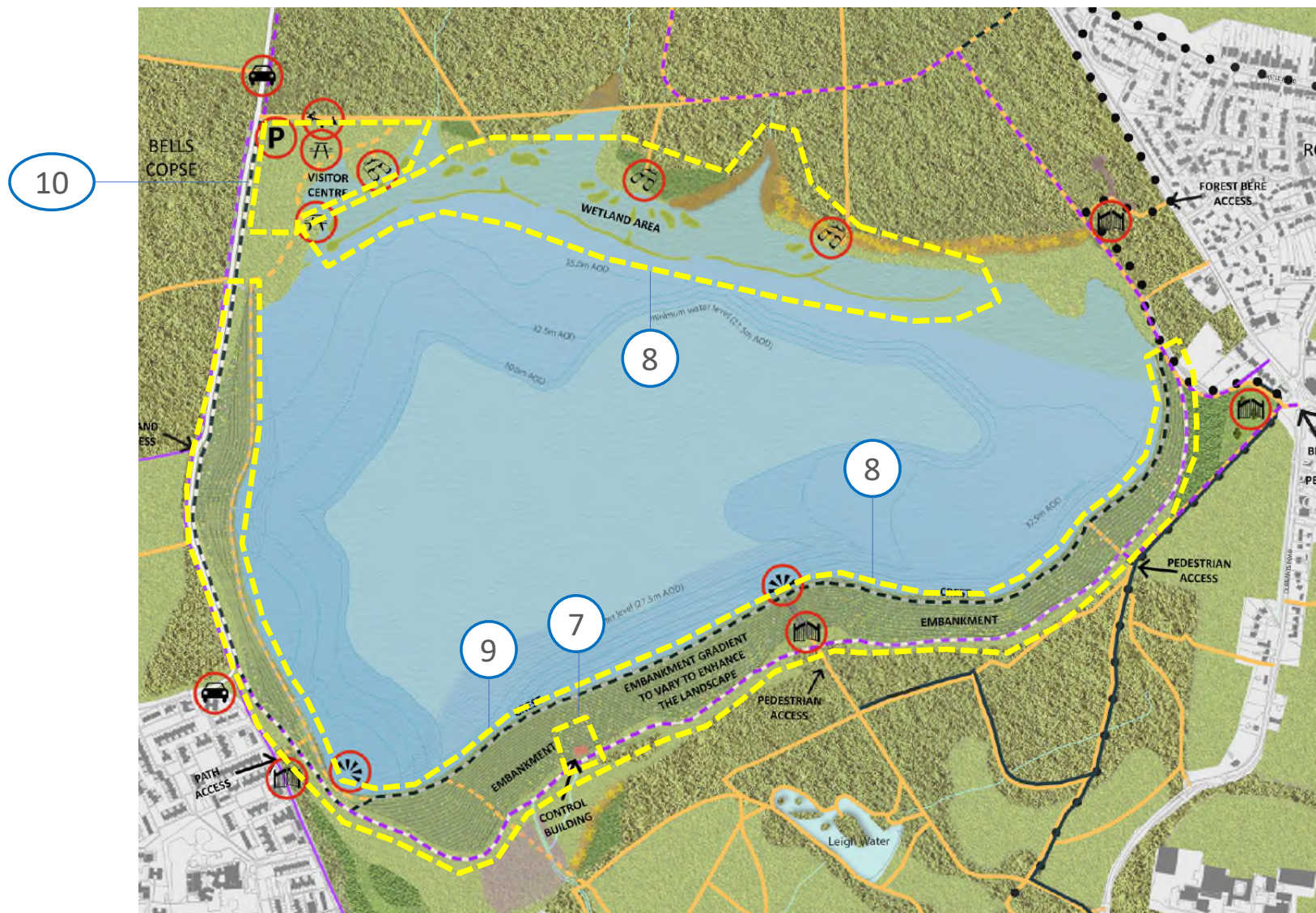
Dates subject to
change following
further schedule
development

Ref	Element Covered	Proposed Submission Timing	Additional Information
1	Northern Access Route	July 2022	Submitted by Atkins
2	Forestry England track raising & culverts	Q4 2022 - Q1 2023	
3	Southern Access Route	Q4 2022 – Q1 2023	S.278 to be submitted separately



Dates subject to
change following
further schedule
development

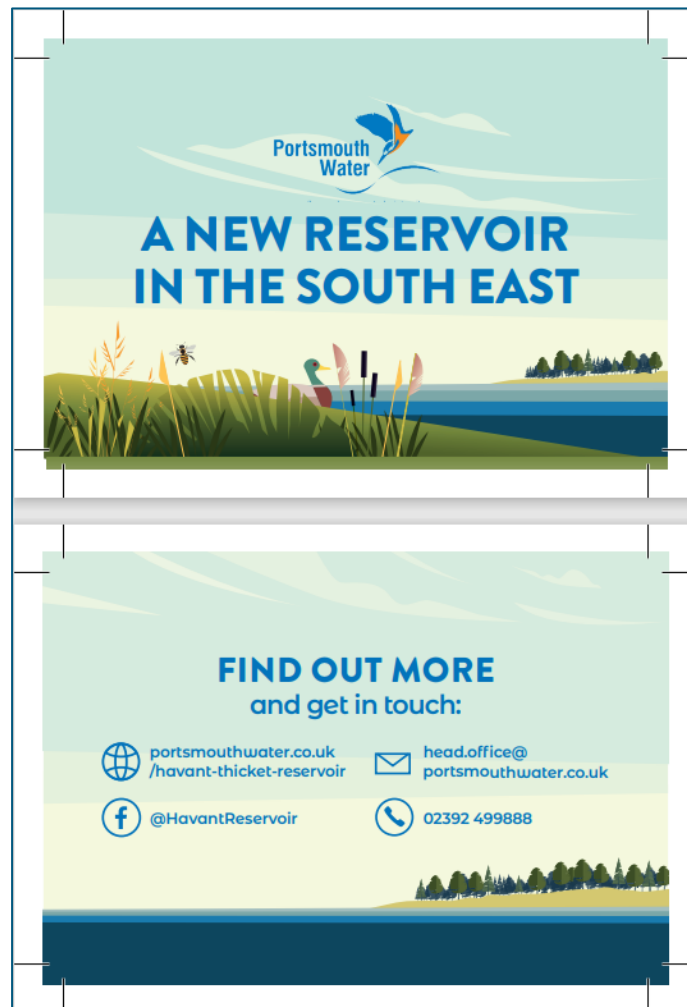
Ref	Element Covered	Proposed Submission Timing	Additional Information
4	Wetland earth embankments & control structures	Q2 – Q3 2023	
5	Main reservoir embankment earthworks	Q1 – Q2 2023	
6	Reservoir culvert, valve tower, spillway & bi directional pipe	Q2 – Q3 2023	



Ref	Element Covered	Proposed Submission Date	Additional Information
7	Control House	Q2 – Q3 2023	
8	Soft landscaping – all areas	Q3 – Q4 2023	inc. embankment and wetlands planting, grass lands, bulbs & trees
9	Hard landscaping – all areas	Q3 – Q4 2024	inc. Avenue staircase, viewing point, access track & footpaths
10	Visitors Centre	Post 2026	inc. car park & landscaping

Dates subject to
change following
further schedule
development

Appendix C – Contact Card



Appendices D₁ & D₂ – Construction Traffic Management Plan and Construction Method Statement

Havant Thicket Reservoir

Construction Traffic Management Plan

Main Reservoir Works Phase

09/09/2022 | v1.2

Document Reference : HTR-MRW-CTMP-v1.2



Version Control Register

Version	Date	Author	Reviewed By	Approved By	Notes
1	28/07/22	Dan Argles	Geraint Lloyd		
1.1	02/09/22	Dan Argles	Geraint Lloyd		
1.2	09/09/22	Dan Argles	Geraint Lloyd		

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1. Introduction and Aims
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5. Management of Vehicle Movements
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7. Stakeholder Management and Communications
8. Programme and Sequence of Works
9. Vehicle Types and Numbers
10. Vehicle Timings
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12. Arrangements on Site
13. Risk Assessment

Appendices

- 1 – General Site Arrangement & Layout
- 2 – Compound General Arrangement
- 3 – Delivery Vehicle Routing
- 4 – B2149 Site Entrance Signage Layout
- 5 – Construction Method Statement (CMS)

1. Introduction & Aims

- a) This Construction Traffic Management Plan (CTMP) has been prepared by Future Water MJJV for the works at Havant Thicket Reservoir only and has been prepared based on the information provided within the approved Framework Construction Traffic Management Plan (FCTMP). A separate CTMP will be prepared for the pipeline works however both plans will be based on the FCTMP to ensure continuity and consistency between documents.
- b) This document is required to discharge Condition 12 of the permissions. The requirements of Condition 12 and where within this document the requirements are addressed are set out in **Table 1** below.

Condition 12 – Construction Traffic Management Plan (CTMP)	
<i>A) No development shall take place until a Construction Traffic Management Plan (CTMP) has been submitted to, and approved in writing by, the Local Planning Authority (in consultation with Hampshire County Council as local highways authority).</i> <i>B) No phase of the development approved under Condition 4 shall commence until a phase specific CTMP for that parcel has been approved in writing by the local planning authority. The CTMP(s) shall include all commitments set out in the Framework CTMP, dated 31/03/2021, submitted with the planning applications and will include a Construction Traffic Management Strategy and Construction Worker Travel Plan. The CTMP shall include the following:</i>	
Detail	Where Addressed
vehicle routing plans	Appendix 3
proposed programme and duration	Section 8
number of construction personnel including travel arrangements and mitigation where necessary	Section 9
alterations to the highway, including temporary and / or permanent, to enable construction	Sections 3, 4 & 8
details of the number of construction and delivery vehicles using the public highway (no abnormal loads are anticipated at this stage)	Section 9
traffic management details	Sections 4 & 5
compounds and laydown area details	Appendix 1 & 2
highway condition surveys	Section 11
methods for managing the site to prevent mud onto the highway	Section 12.i & j
details of on-site contractor parking.	Section 12.a, b & c

- c) This plan sets out how construction traffic and site operations will be managed. It sets out the parameters in which we will work including hours of operation, traffic routing, safe vehicular access and egress and how the impact of the construction traffic will be mitigated. The plan is a “live” document and will be subject to regular review.
- d) The plan will be issued to and agreed with the local planning authority and the relevant governing highway authorities.

2. Site Details

- a) The site is located to the north of Havant in Hampshire
- b) To the north, the site is bounded by a mixture of private land and forestry land owned by Forestry England
- c) To the east, the site is bounded by forestry land and the B2149
- d) To the south, the site is bounded by a mixture of amenity land (Staunton Country Park) and residential properties forming part of the Leigh Park estate.
- e) To the west, the site is bounded by further residential properties on Swanmore Road and amenity land made up of heath and wooded land.

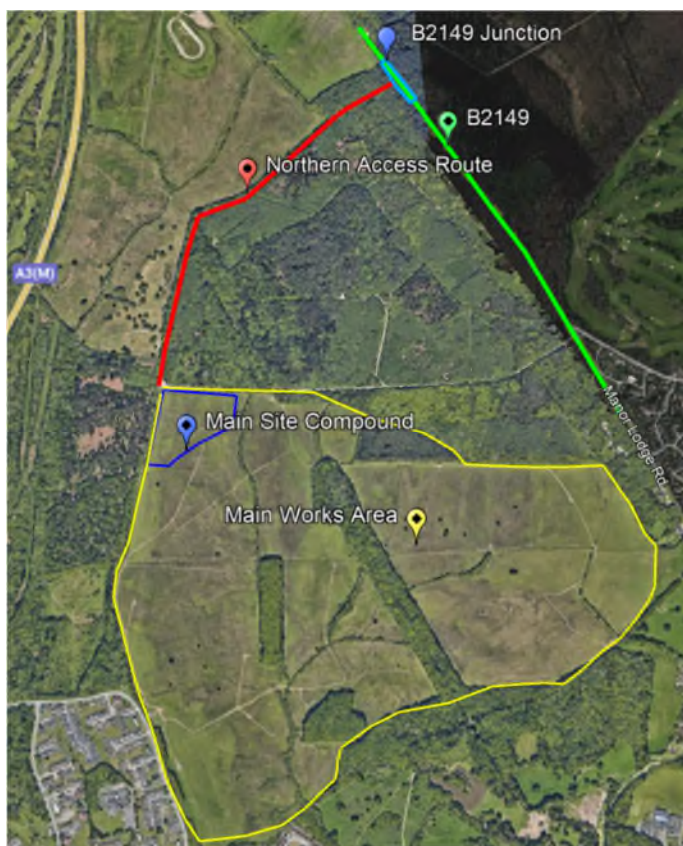


Fig 1. Site location

3. Scope of Construction Activities

The scope of the works to be undertaken during the main reservoir construction phase is as follows:

- Construction of new junction off the B2149 including carriageway re-profiling
- Construction of new access road into the site from the new B2149 junction henceforth referred to as the Northern Access Route (NAR)
- Establishment of site compound in north west corner of the site
- Raising of existing Forestry England track & construction of 2nr new culverts
- Construction of new earth embankments
- Construction of new control structures
- Installation of MEICA and associated fit out
- Construction of new access roads and footpaths
- Hard and soft landscaping

4. Proposed Works Area Access Point

- a) During the course of the main reservoir construction phase, construction traffic will access and egress the site using the NAR. See layout drawing in appendix 1.
- b) A manned control point will be established at the B2149 end of the NAR. This control point will ensure that only authorised vehicles enter the site.
- c) Advanced warning signage will be erected on the approach to the junction from both directions warning drivers of the site entrance and turning vehicles. Signage will be installed as per the approved drawing HTR-ATK-AR-RE-DR-D0026 Section S278 B2149 Traffic Signs And Road Markings with the exception that the current scheduled “brown” recreational interest signs will be replaced by white text on red background signs advising of the work entrance for the duration of the works. The scheduled signage will be installed once the facility is operational and open to the public.
- d) It is not proposed at this stage to use the Southern Access route for main reservoir construction traffic. Should this be deemed necessary in the future, approval will be sought from HCC Highways.

5. Management of Vehicle Movements

- a) All vehicle drivers delivering to site will have been provided with delivery instructions prior to arrival on the measures to be employed to provide a safe and un-disruptive arrival. Delivery instructions will be issued to all suppliers and contractors at the time of placing an order. Instructions will be issued as part of the purchase or sub-contract order. These instructions will then be passed to drivers prior to arrival.
- b) The delivery instructions will include information relating to timings, routing to the site access point and health and safety considerations.
- c) All deliveries will be required to be booked in, prior to arrival to ensure that facilities for access, unloading and loading are not overwhelmed.
- d) An online portal will be provided to allow the effective management of delivery slots and to provide visibility to the site team of all up and coming planned deliveries.

- e) A dedicated logistics manager will control the vehicle movements on and off site through their team of security officers and vehicle marshals.

6. Interface with Existing Rights of Way

- a) The NAR will be closed to public use during its construction and following its opening for its use by construction traffic.
- b) The existing east west bridleway which crosses the site will also be closed following the works required to upgrade the existing Forestry England track are completed. Pedestrians will then be diverted along the FE track.
- c) Where existing footpaths or PRow cross or interface with construction traffic, warning signage and designated points will be formed to allow pedestrians to safely cross construction traffic routes.

7. Stakeholder Management and Communications

- a) Portsmouth Water & Future Water's stakeholder and communications managers will work together to ensure advance notice of our works is published to all stakeholders associated with the scheme.
- b) A dedicated telephone number (see below) has been provided to enable stakeholders or members of the public to make contact with the project team during the works to raise any issues or concerns. Any issues are logged and closed out as soon as practicably possible. The images below are taken from the business cards provided to the workforce on site to enable them to provide a contact point for any members of the public who approach them during the working day.



- c) The site management team will deal with any urgent issues on a day to day basis and will be the point of contact on site. The security officers at the access points will be the first members of the project team any member of the public would come too and will be able to make contact with the site management team who can then look into the issues.
- d) Portsmouth Waters stakeholder and communications manager will continue to meet and liaise with the various public stakeholder forums throughout the duration of the works. All feedback from these groups can then be dealt with as required.

- e) Portsmouth Waters stakeholder and communications manager will continue to liaise with other adjacent local development teams. This includes the Land East of Horndean project team whose works are due to start on 2023 to the north of the reservoir site.

8. Programme and Sequence of Works

- a) Works to the B2149 junction will commence in August 2022 with the junction planned to be complete and operational by December 2022. Further details are available within the Construction Method Statement (CMS) – see appendix. All permits and permissions for the B2149 junction works have been granted by HCC Highways and are in place.
- b) Following the completion of the junction, construction can then commence on the NAR. The NAR is planned for completion in February 2023.
- c) With the NAR route complete, this provides access to the works area for the construction of the main project compound which will contain the project offices and storage areas. The compound layout provided is indicative and the plan will be updated once further design work is completed
- d) Construction works on the main reservoir site are expected to commence in 2023 with a 3-4 year programme of earthworks & civil works expected followed by a 3-year commissioning programme. During the commissioning period the site hard and soft landscaping will also be completed.

9. Vehicle Types and Numbers

- a) Vehicle movements on and off site will be made up of (but not limited to) the following vehicle types:

Vehicle Type	Usage
Small van / car	Commuting
Box vans – 3-7.5t	Materials & goods
Curtain sided lorry	Materials & good
Tankers	Fuel, water, waste disposal
Tippers	Deliver aggregate
Rigid HGV – beaver tail	Deliver equipment
Articulated HGV	Deliver plant

Fig 2. Vehicle types

- b) The number of vehicles accessing the site will vary dependant on the work being undertaken at the time. During the summer “earthwork seasons” vehicle numbers will increase with numbers falling during the winter periods.
- c) HGV movements will be restricted to 32 per hour (16 arrivals & 16 departures) with no more than 200 in one day (100 arrivals & 100 departures). Approval will be sought for any increases required for specific ad-hoc activities.
- d) During the peak summer earthwork seasons, we expect to have 180 members of staff on site. Approximately 40 of those members of staff will reside on site in temporary accommodation during this period thus reducing the amount of daily vehicle movements for commuting purposes.
- e) The Construction Worker Travel Plan contains further details of how we plan to mitigate the impact of commuting members of staff on the local highway network.

10. Vehicle Movement Timings

- a) The majority of vehicle movements will occur before and after peak hours as site working hours are 07:00-18:00hrs. (07:00-07:30 pre-start briefings)
- b) All delivery vehicles will be instructed to approach the site access point from the north via junction 2 of the A3(M). This routing will avoid interfacing with peak traffic flows in the built-up areas of Havant.
- c) HGV deliveries will avoid peak times 08:00-09:00 & 17:00-18:00

11. Communication & Monitoring of The Plan

- a) The contents of the traffic management plan will be briefed to all personnel on site as part of the site induction and will be refreshed over the period of the works in the pre-start daily activity briefings.
- b) Vehicle numbers and frequencies will be monitored to ensure that volume, frequency and timing of arrivals coincide with the stated numbers & times.
- c) Should changes be required to be made to the plan, these will be discussed with Portsmouth Water & HCC Highways.
- d) Highway conditions on the B2149 around the new junction will be monitored during the construction period to detect any defects requiring attention.
- e) Any accidents or incidents involving vehicles entering or leaving the site will be recorded and investigated. Any emerging trends will be raised with the designers & the LHA.

12. Arrangements on Site

- a) Car parking will be provided on site for approximately 220 vehicles. This provides for site staff & visitors for both the reservoir and pipeline projects. See indicative site layout in appendix 3. The number of staff using the compound from the pipeline

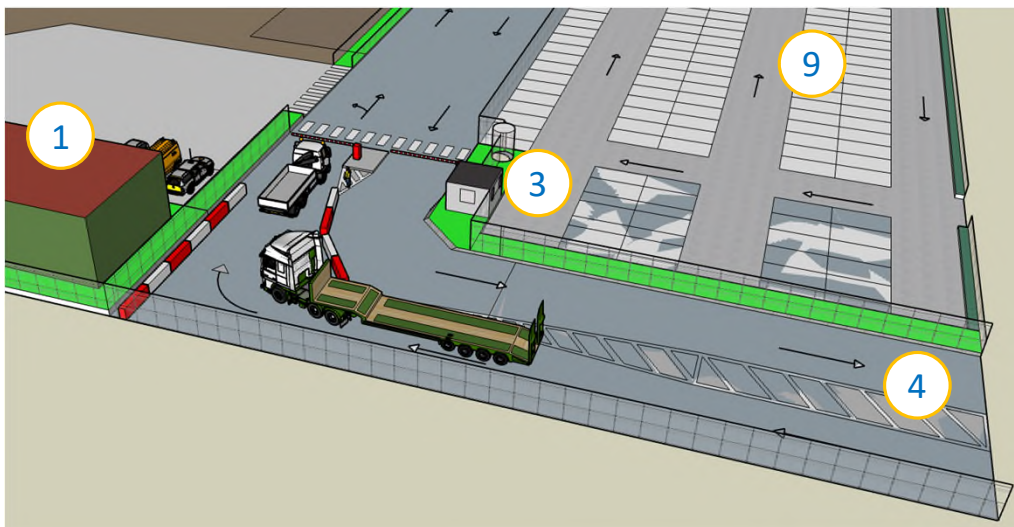
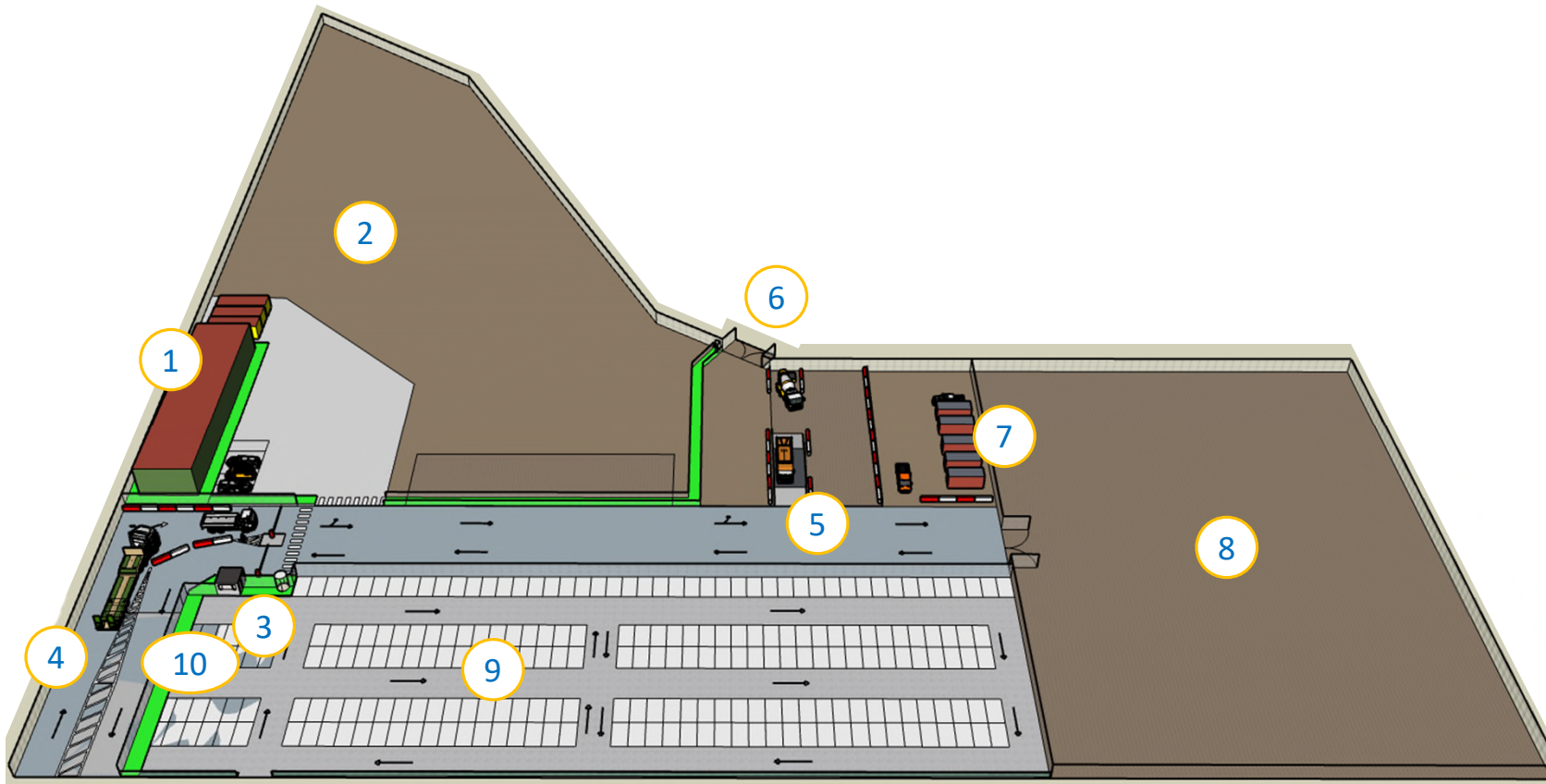
project is expected to be lower than originally assessed at planning, so whilst the reservoir numbers may have increased this is offset by less staff from the pipeline team.

- b) During the peak summer earthwork seasons, we expect to have 180 members of staff on site. Approximately 40 of those members of staff will reside on site in temporary accommodation during this period thus reducing the amount of daily vehicle movements for commuting purposes.
- c) Additional overflow parking will be provided if required adjacent to the project office facilities.
- d) Electric vehicle charging points will be provided within the car parking area.
- e) Parking spaces will also be provided adjacent to the access control point for disabled / priority parking.
- f) Access onto to site for vehicles will be via a security officer-controlled gate and the site layout will provide for vehicles to pass safely on the way and out of the compound.
- g) Segregated pedestrian walkways & access points will provide safe routes for pedestrians to access the site.
- h) Areas will also be provided for secure parking of motorcycles and storage of bicycles.
- i) Hard surfacing will be provided within the compound to assist with keeping vehicles clean and to negate the need for wheel washing.
- j) Where vehicles have to leave the hard-surfaced roads and areas within the site compound and use the on-site haul roads, wheel washing facilities will be provided to ensure that mud and debris is not transferred onto the public highways.

13. Risk Assessment

Risk	Hazard	Control Measures Additional to Those Within Framework CTMP
Interface with public vehicles	Delivery vehicles arriving on site, vehicles manouvering, damage, injury	New junction to be constructed to provide safe access to the site, provide warning signage on approach to site entrance, drivers to receive instructions relating to site entrance ahead of arrival, drivers of oversized vehicles to call Logistics Manager ahead of arrival, schedule and plan deliveries (where possible) to avoid times of peak traffic flows.
Delivery vehicles	Disruption to local traffic flows	Schedule & plan deliveries to avoid morning and evening commuter periods, delivery drivers to call site supervisor ahead of arriving to ensure that access routes are free, all vehicles to be pre-booked into site using on-line booking portal, place orders in bulk to consolidate deliveries and to prevent regular small parcel drops
Use of existing carriageways	Damage	Undertake prestart photographic survey
Use of existing carriageways	Mud and debris on road	Compound to be provide with hard surfacing & wheel washing facilities where needed, road sweeper to maintain cleanliness of public highways as a last resort.
Interface with pedestrians	Injury	Provide warning signage, ensure clear lines of site are maintained, provide segregated pedestrian walkways within the compound and works areas, provide signed and designated crossing points for pedestrians.
Additional traffic using local network	Delays, congestion, environmental impact	Prepare project travel plan and appoint travel coordinator to promote sustainable transport usage and to monitor project trends, employ staff from the local area who are able to walk, cycle and utilize public transport where possible, encourage car sharing and use of remote meetings
Manouvering vehicles in compound	Injury and damage	Provide one-way system within compound for vehicles, provide segregated pedestrian walkways, provide designated unloading areas

Appendices



KEY:

- 1 Project accommodation – offices, welfare facilities
- 2 Hard standing for storage
- 3 Security control point
- 4 Tarmac surfaced vehicle access point
- 5 Wheel wash
- 6 Access point to works area
- 7 Storage containers, waste disposal & concrete wash out
- 8 Pipeline contractor compound
- 9 Tarmac surfaced car park
- 10 Cycle parking

No.	Revision	App	Date
Drawing Revisions			



Future Water MJJV Ltd
Baskett House, Henfield Road, Small Dole, West Sussex. BN9 9XQ
A Mackley Jones Joint Venture

Client



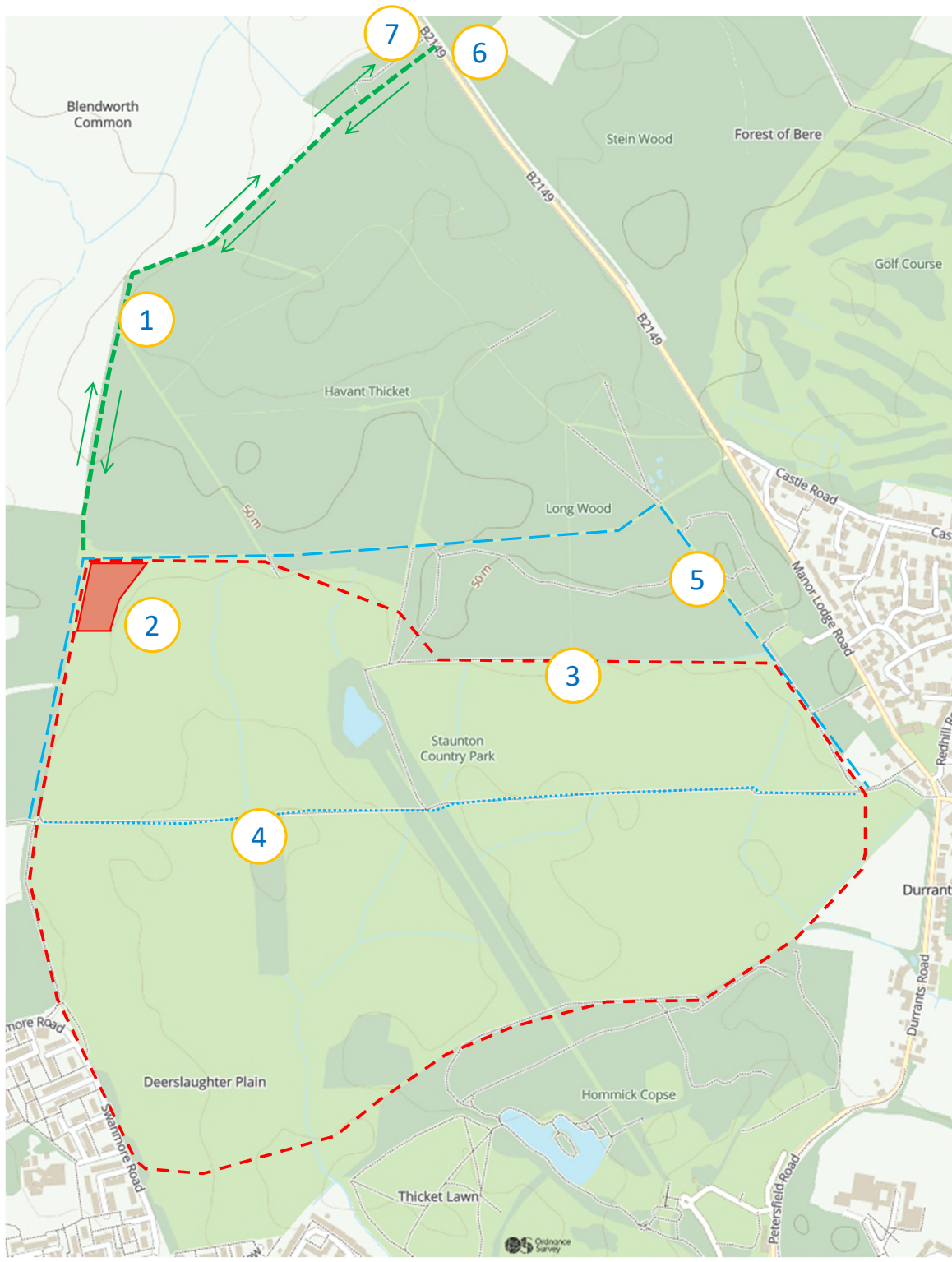
Project

Havant Thicket Reservoir

Title

Main Reservoir Works Compound
Indicative Arrangement

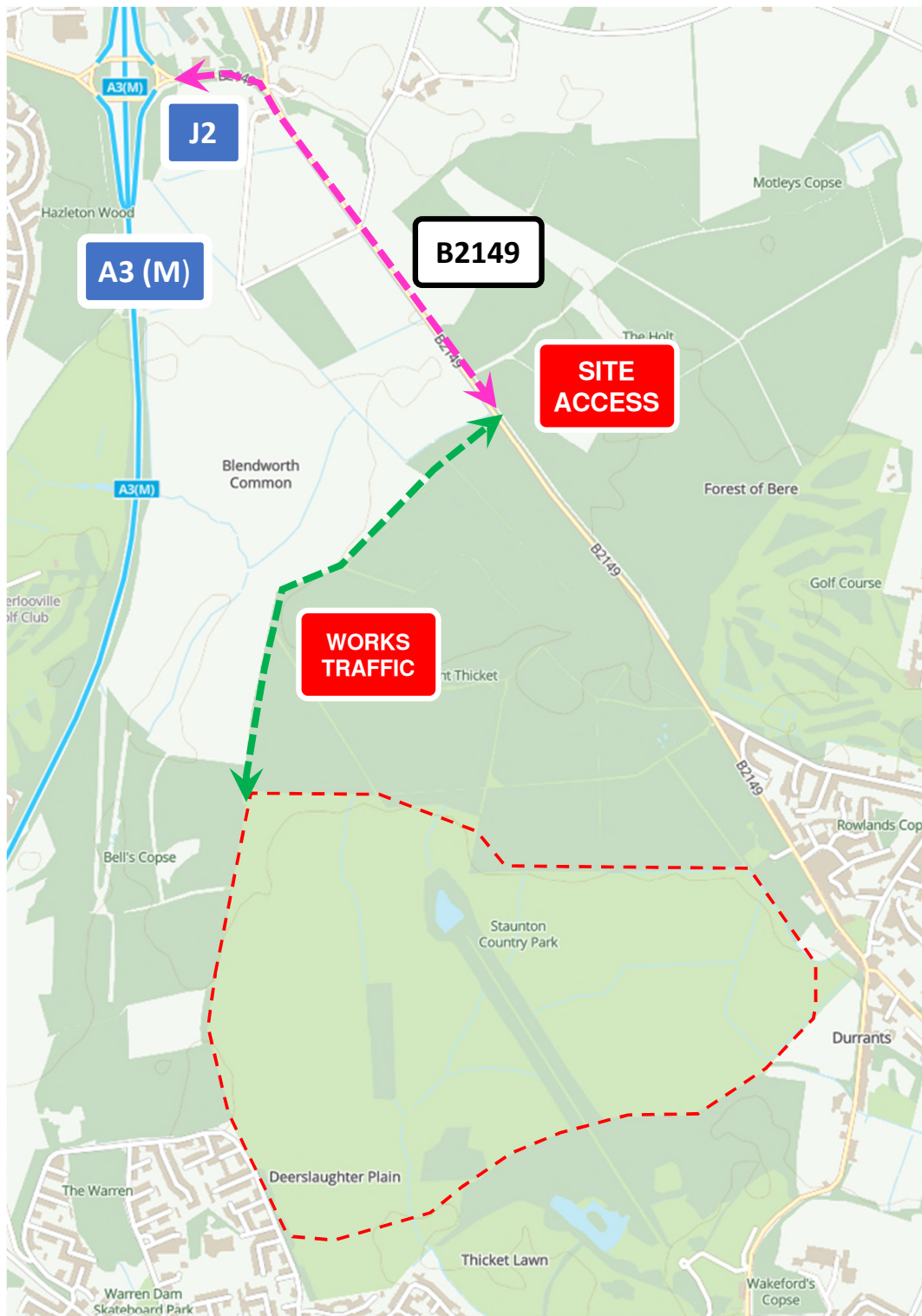
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Checked by	Date checked	Approved by	Date approved
Drawing status			Revision
Drawing No.			5311-DR-XXXXX



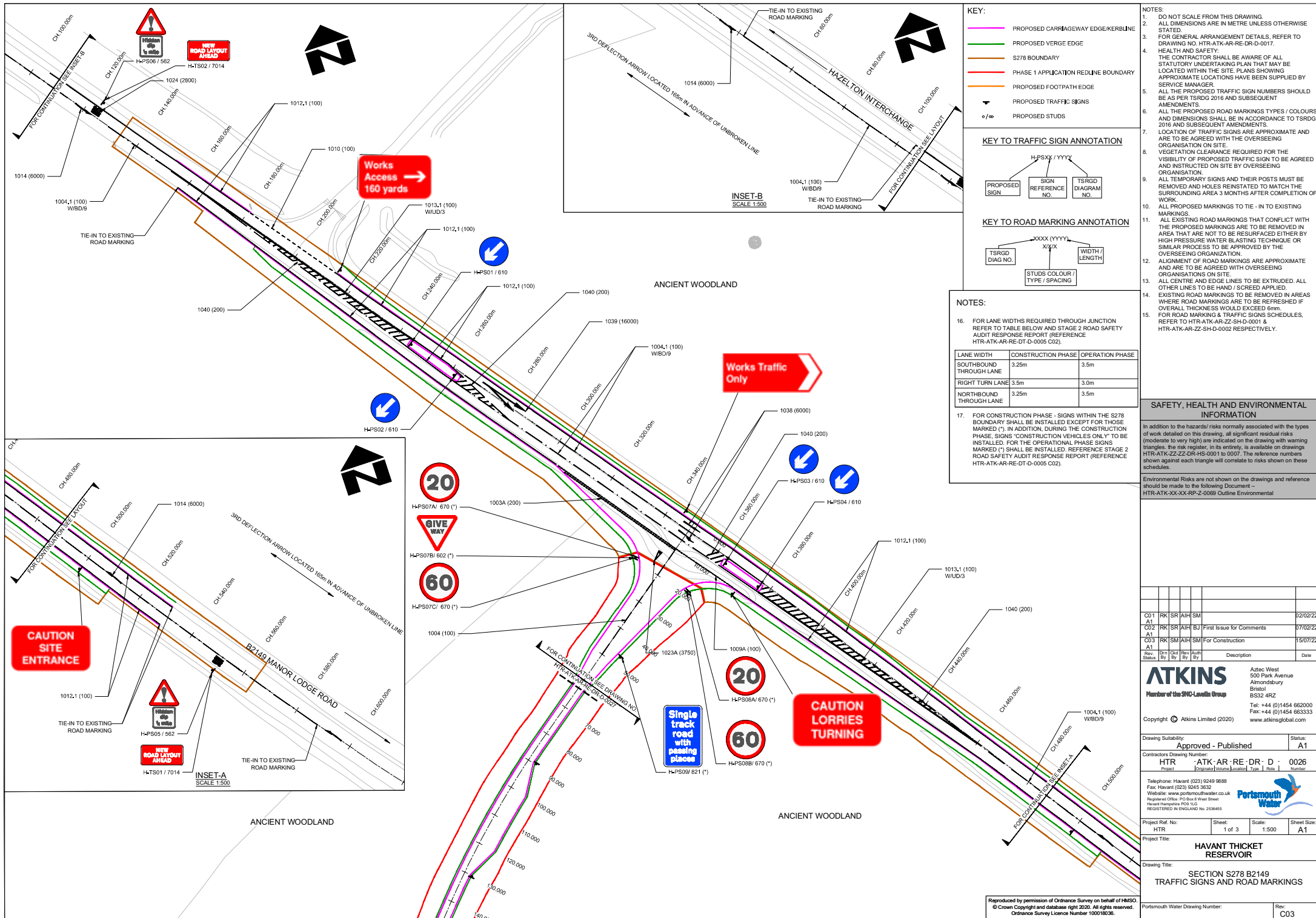
KEY:

- 1 Northern access route (NAR)
- 2 Site compound
- 3 Main works area boundary
- 4 Existing bridleway to be closed
- 5 Diverted route of bridleway
- 6 B2149 junction / main access point
- 7 Security control point

No.		Revision		App	Date
Drawing Revisions					
 Future Water MJJV Ltd Future Water MJJV Ltd Bankside House, Henfield Road, Small Dole, West Sussex. BN9 9XQ A Mackley Jones Joint Venture					
Client					
					
Project					
Havant Thicket Reservoir					
Title					
Main Reservoir Works Traffic Management Plan Site Access					
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Drawing status				Revision	
Drawing No.		5311-DR-xxxxxx			



No.	Revision	App	Date
Drawing Revisions			
			
Future Water MJJV Ltd Barkstall House, Henfield Road, Small Dole, West Sussex. BN9 9XQ. A Mackley Jones Joint Venture			
Client			
			
Project			
Havant Thicket Reservoir			
Title			
Main Reservoir Works Delivery Vehicle Routing			
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Drawing status		Revision	
Drawing No.		5311-DR-XXXXX	



Havant Thicket Reservoir

Construction Method Statement (CMS)

Main Reservoir Works Phase 1

02/09/2022 | v1.1

Document Reference : HTR-MRW-CMS-v1.1



Version Control Register

Version	Date	Author	Reviewed By	Approved By	Notes
1	28/07/22	Dan Argles	Geraint Lloyd		
1.1	02/09/22	Dan Argles	Geraint Lloyd		

Contents

1. Introduction and Aims
2. Site Details
3. Scope of Construction Activities
4. Programme and Sequence of Works
5. Methodology

1. Introduction

- a) This Construction Method Statement has been prepared by Future Water MJJV for the phase 1 works at Havant Thicket Reservoir.
- b) This document is required to discharge Condition 6 of the permissions. The requirements of Condition 6 and where within this document the requirements are addressed are set out in **Table 1** below.

Condition 4 – Construction Method Statement (CMS)	
Detail	Where Addressed
<i>No phase of the development approved under Condition 4 shall commence until a Construction Method Statement (CMS) for that phase has been submitted to and approved in writing by the Local Planning Authority. The development shall be carried out in accordance with the approved detail.</i>	Sections 3,4 & 5
Reason: To ensure that the construction process is carried out in a manner which will minimise disturbance, pollution & nuisance to neighbouring properties	

- c) This document will remain a live document being updated for each phase of reserved matters applications.
- d) The objective of the scheme 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. Similarly, one of the strategic drivers for the scheme is to ensure a positive contribution to local and internationally important habitats by supporting Government's objective to reduce the damaging abstraction of water from rivers.
- e) The reservoir, when constructed, will be filled with surplus water drawn from the springs at the Portsmouth Water pumping station at Bedhampton works when flows are at their highest in winter via a new combined inlet/outline pipeline, and will provide water supplies to Portsmouth Water customers in the summer months as required.
- f) This document is to be read in conjunction with the following phase specific documents:
- Detailed Phasing Plan
 - Construction Noise & Vibration Management Plan
 - Construction Noise Assessment
 - Construction Traffic Management Plan
 - Construction Environmental Management Plan
 - Archaeological Management Plan

2. Site Details

- a) The site is located to the north of Havant in Hampshire
- b) To the north, the site is bounded by forestry land owned by Forestry England
- c) To the east, the site is bounded by forestry land and the B2149
- d) To the south, the site is bounded by a mixture of amenity land (Staunton Country Park) and residential properties forming part of the Leigh Park estate.
- e) To the west, the site is bounded by further residential properties on Swanmore Road and amenity land made up of heath and wooded land.

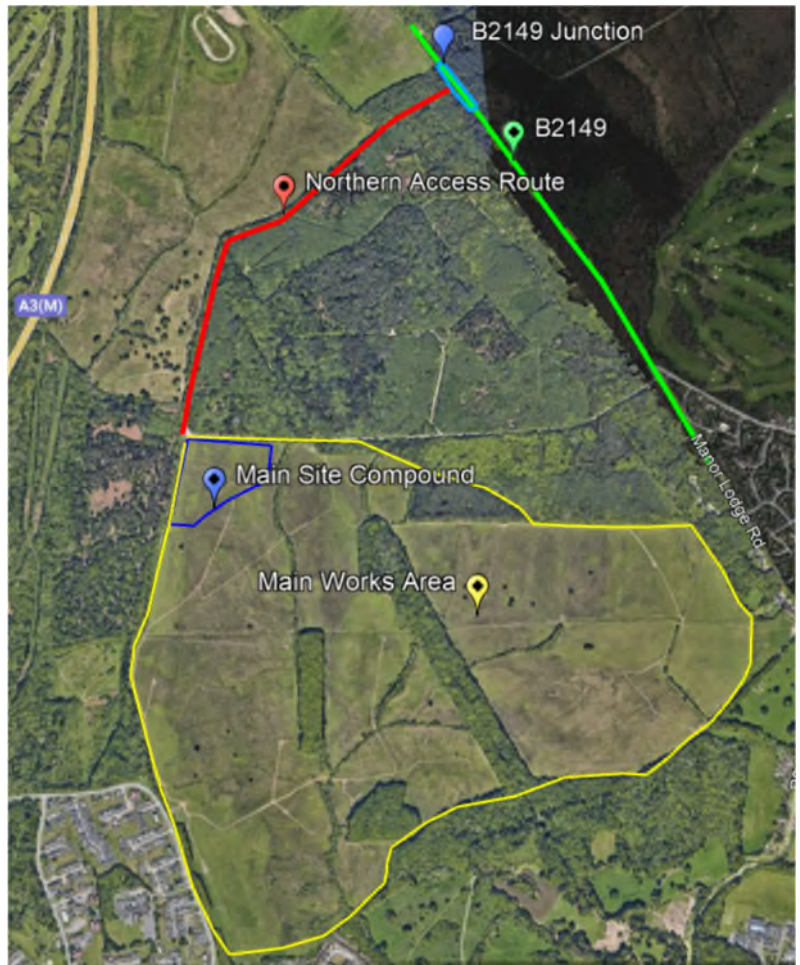


Fig 1. Site location

3. Scope of Construction Activities

The scope of the works to be undertaken during the main reservoir construction phase is as follows:

- Construction of new junction off the B2149 including carriageway re-profiling
- Construction of new access road into the site from the new B2149 junction henceforth referred to as the Northern Access Route (NAR)
- Establishment of site compound in north west corner of the site
- Raising of existing Forestry England track & construction of 2nr new culverts
- Construction of new earth embankments
- Construction of new control structures
- Installation of MEICA and associated fit out
- Construction of new access roads and footpaths
- Hard and soft landscaping

4. Programme and Sequence of Works

- a) Works to the B2149 junction will commence in August 2022 with the junction planned to be complete and operational by December 2022.
- b) Following the completion of the junction, construction can then commence on the NAR. The NAR is planned for completion in February 2023.
- c) With the NAR route complete, this provides access to the works area for the construction of the main project compound which will contain the project offices and storage areas.
- d) Construction works on the main reservoir site are expected to commence in 2023 with a 3-4 year programme of earthworks & civil works expected followed by a 3-year commissioning programme. During the commissioning period the site hard and soft landscaping will also be completed.

5. Methodology

Pre-Commencement	
Activity	Construction of New Junction Off B2149
Description	
New junction to be constructed off the B2149 using two-way traffic lights for the 1 st phase, followed by a full road closure. The new carriageway will be excavated, drainage & kerbs laid, new sub-base laid & gullies installed. Once complete, the B2149 will be closed to allow new cross carriageway drainage to be laid, islands to be constructed & the existing carriageway re-profiled and re-surfaced.	
Welfare Provision	Self-contained welfare units
Plant & Equipment Employed	
Tracked excavators – varying in size from 3 to 13t c/w hydraulic breaker attachment	
6t cabbed swivel dumpers	
Road going tippers, grab lorries & concrete delivery vehicles (volumetric & drum)	
Smooth drum sit on roller	
Road planer	
Road paver	

Phase 1	
Activity	Construction of Northern Access Route (NAR)
Description	
New running surface to be constructed for construction traffic and then for use by visiting traffic when the reservoir is operational. The running surface is to be constructed from both sections of tarmac surfacing & stone surfacing. No dig methods are to be used in places to protect the roots to adjacent trees. Works will commence at the northern end and will proceed southwards using small plant and completing the running surface as works progress. The NAR will be closed off in sections as works proceed using heras fencing. Public access will be prohibited during construction and when the NAR becomes operational. A compound will be formed at the B2149 end of the NAR where plant, materials and welfare facilities will be delivered, stored and located. Following the approved construction details, sub-base will be initially laid and compacted using a small sit on roller. The number of passes required will be in accordance with the Specification for Highway Works MCHW table 6/1. Edgings will be placed in accordance with the approved details. Geotextile will then be laid and secured. Cellweb will then be overlain, secured and filled in accordance with the manufacturer's instructions. Another geotextile separating layer will then be placed before topping with type 3. Throughout the process the phase specific Inspection & Test plan will be followed to ensure that all works comply with the specification.	
Welfare Provision	Self-contained welfare units
Working Hours	0730-1700hrs
Plant & Equipment Employed	
Tracked excavators – varying in size from 3 to 8t	
6t cabbed swivel dumpers	
Road going tippers, grab lorries & concrete delivery vehicles (volumetric & drum)	
Smooth drum sit on roller	

Activity	Establishment of Site Compound
Description	
Compound to be constructed by stripping topsoil & excavating sub-soil. During these processes, ecologists & archaeologists will supervise the works. New below ground ducts for services & drainage will be laid followed by sub-base material. Tarmac surfacing will then be laid in for the car park, access roads and unloading areas. Foundations will be formed for the project accommodation and utility connections prepared. The compound will be surrounded a 2m high chain-link fence and access will be controlled by a security officer and a facial recognition-controlled turnstile. The accommodation units will be bought to site by articulated lorries and craned into place using a 50t crane. Utilities will then be connected, and the offices fitted out. Finally, line marking will be laid within the car park and trafficked areas.	
Welfare Provision	Anti-vandal units with generator & septic tanks
Plant & Equipment Employed	
Tracked excavators – varying in size from 3 to 30t	
6 & 9t cabbed swivel dumpers	
Road going tippers, grab lorries & concrete delivery vehicles (volumetric & drum)	
Smooth drum sit on roller	
Articulated lorries	
50t mobile crane	
Road paver	

Phase 2	
Activity	Raising of FE CAT A Track & Installation of New Culverts
Description	
The FE track will be required to be closed for the duration of the works. Access will be provided by the NAR. Subject to approval of the design, environmental mitigation works will be required to be undertaken first which may include the felling of trees and clearance of vegetation. Excavations will be formed along the line of the existing watercourses and new pre-cast concrete culverts installed. New headwalls will then be formed before backfilling commences. The track level will be raised in accordance with the design.	
Welfare Provision	Anti-vandal units with generator & septic tanks
Plant & Equipment Employed	
Tracked excavators – varying in size from 13 to 30t (dependant on culvert unit sizes)	

9t cabbed swivel dumpers
Road going tippers, grab lorries & concrete delivery vehicles (volumetric & drum)
Smooth drum sit on roller
Articulated lorries

Phase 4 & 5	
Activity	Construction of Earth Embankments
Description	
Haul roads around the work site will be constructed using recycled crushed concrete material. The material will be delivered tipper using the NAR. Alongside the haul road, the existing watercourses running across the site will be diverted around the works and settlement lagoons formed as part of the temporary de-watering measures. Once these works are complete, a clay cut off will formed below ground to limited seepage of groundwater. The clay for the embankments around the site, will be won from borrow pits within the site boundary, limiting the need for imported materials. Some imported materials will still be required for the embankments and these will be needed to formed drainage layers within the structure. Clay will be excavated from the borrow pits using excavators and loaded into articulated dump trucks. The clay will then be taken to the deposition point via the haul roads and tipped. Once tipped, a dozer will push the clay out in layers before the clay is compacted using a roller. The excavators and dozers will be fitted with GPS guidance systems to ensure that the clay is placed to the correct thicknesses in the correct locations. The GPS is also used for trimming up the shoulders of the embankment to the correct gradients. This process is repeated throughout the earthworks season and until the maximum amount of clay has been placed for the period worked. It is expected to take 3-4 earthworks seasons to complete all the embankments. An earthwork season is defined as March-October. Throughout the placement, in-situ and off-site testing will be undertaken to ensure that the specification for the works is adhered to.	
Welfare Provision	Main project accommodation and satellite compounds
Plant & Equipment Employed	
Tracked excavators – varying in size from 21t to 50t	
40t articulated dump trucks	
24t D65 dozers	
18t smooth & padfoot rollers	
Tractors and bowers	
Wirtgen soil mixer	
Pumps, settlement tanks and generators	

Phase 6 & 7	
Activity	Construction of Control Structures
Description	
There are several new reinforced concrete control structures to be constructed as part of the scheme with the embankment culvert and valve tower being the most significant. Following initial ground preparation works being completed, the reinforced concrete structures will be created by following industry standard procedures – fix reinforcement, erect formwork, place concrete, allow to cure and remove formwork. Lattice boomed crawler cranes will be employed to lift materials, formwork & place concrete through the process with attendant excavator and concrete pumps assisting where required. Concrete will be delivered to the work face by road going drum mixer lorry, accessing the site via the NAR and then the on-site haul roads. Concrete will be discharged and then the vehicle washed out into a concrete wash-out system which captures the cement laden water and filters it for re-use. The cement slurry left behind is safely captured and is disposed of once hardened. Where below ground structures and pipework is required to be installed, proprietary excavation support systems will be employed to provide safe working conditions for the workforce. Once the pipework or structure is completed, the excavations are backfilled, and the support removed. As above these works are undertaken using tracked excavators and crawler cranes.	
Welfare Provision	Main project accommodation and satellite compounds
Plant & Equipment Employed	
Tracked excavators – varying in size from 8t to 21t	
9t cabbed swivel dumpers	
80t & 120t lattice boomed crawler cranes	
Various lifting equipment – chains, slings, skips, lifting beams	
Boom concrete pump	
Jet wash bowzers and concrete wash out units	
Proprietary and timber formwork systems	
Access scaffold and powered access (MEWPS)	
Temporary excavation support systems – boxes, sheets and frames	
Edge protection systems	

Phase 6 & 7	
Activity	Installation of MEICA and Associated Fit Out of Culvert
Description	
The draw off, filling pipework and associated systems will be located within the embankment culvert and tower. Materials and equipment will be delivered to the workface from the compound using the on-site haul roads and will be stored in designated compounds before being distributed for installation. The pipework will be installed using small lifting gantries following completion of the structure along with cable containment systems for the various controls, lighting and power required. The valve tower will also require access stairs and platforms to be installed. These will also be installed using lifting gantries and powered access equipment. Once pipework and containment are completed, 2nd fix activities can commence including wiring, installation of control panels and finally testing before energisation and filling. The control structures will also require varying types of security fencing, gates, doors and barriers to be installed. Where practicable these will be installed as soon as they are available to provide additional levels of safety and security. Dry commissioning of the reservoir will only be commenced once all criteria within the project commissioning plan have been satisfied and signed off.	
Welfare Provision	Main project accommodation and satellite compounds
Plant & Equipment Employed	
Hiab equipped lorries	
Telehandler	
Spider cranes & lifting gantries	
Powered material handlers	
Powered access equipment (MEWPS)	
Temporary lighting and generators	
Access scaffold and temporary access stairs	

Phase 9	
Activity	Construction of New Access Roads and Footpaths
Description	
The access road, tracks and footpaths will all be constructed following a similar methodology but each with slightly differing materials and sizes. Firstly, the ground will be stripped to formation level and prepared. Subbase will be placed and compacted before edgings or kerbs laid. Any drainage requirements will then be installed before the sub-base is topped up and final surface dressings placed. All work will be undertaken, working progressively along the route of the track or the path, completing the works up until the point where final surface dressings are laid so as not to become damaged or contaminated. Small excavators and dumpers will be used to complete the works with materials being imported onto site via the NAR and distributed to the work face.	
Welfare Provision	Main project accommodation and satellite compounds
Plant & Equipment Employed	
Tracked excavators – varying in size from 3 to 13t	
6t cabbed swivel dumpers	
1t forward tipping dumpers	
Road going tippers and concrete delivery vehicles (volumetric & drum)	
Smooth drum sit on roller	
Plate compactor	
Hand tools	

Phase 8 & 9	
Activity	Hard & Soft Landscaping
Description	
Hard landscaping consisting of fencing, walling and the Avenue staircase will be constructed following on from the earth embankment works and alongside the access tracks and footpaths. Materials will be delivered to site using the NAR and distributed using the access tracks. Small telehandlers and dumpers will be used to convey materials to the work face being installed either by hand or by using small excavators. Soft landscaping will be phased differently to the hard landscaping due to the specific planting timetable which will be dictated by the progress of the works up until that point. As above materials will be delivered using the NAR and then distributed to the workforce. Due to the nature of the contract, full and final details of the landscaping are not yet developed but will be in due course.	
Welfare Provision	Main project accommodation and satellite compounds
Plant & Equipment Employed	
Tracked excavators – varying in size from 3 to 13t	
6t cabbed swivel dumpers	
1t forward tipping dumpers	
Telehandler – including roto type	
Road going tippers and concrete delivery vehicles (volumetric & drum)	
Smooth drum sit on roller	
Plate compactor	
Hand tools	