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Construction Environmental Management Plan

Langstone FCERM Scheme

November 2026

Document information

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Table of Contents

1 Introduction 1
1.1 Planning Conditions 1
1.2 Detailed Risk Assessment 2
1.3 Monitoring 3
1.4 Key environmental constraints 3
2 Site Location and Project Description 5
2.1 Construction Timings, Anticipated Sequencing and Methods 6
3 Working Hours 10
3.1 Communication 10
3.1.1 Complaints procedure 10
3.2 Project Organisation 11
3.3 Emergency Contacts 12
4 Site Set Up 13
4.1 Vegetation Clearance 13
5 Compounds, Access and Haul Routes 14
5.1 Main Compound 16
5.1.1 Compound Layout 16
5.1.2 Parking and Workforce Management 19
5.1.3 Access 20
5.1.4 Dust Control 20
5.2 Satellite Compounds 21
5.2.1 The Ship Inn Satellite compound (Frontage 3) 21
5.2.2 Frontage 1A/2 Satellite Welfare 25
5.3 Traffic Management and Public Access 25
6 Construction Phase 27
6.1 Construction Deliveries, Access and storage 27
6.2 General 27
6.3 Use of Machinery / Fuelling / Fuel Spillage 28
6.4 Foreshore Working 29

6.5 Excavation and Piling Activities 31
6.6 Noise and Vibration Control 32
6.7 Visual Control 33
6.8 Lighting 33
6.8.1 Lighting Design 33
6.8.2 Lighting Controls 34
6.8.3 Monitoring and Review 34
6.9 Materials Management 35
6.9.1 Soils 36
6.9.2 Concrete 36
6.9.3 Other Materials 37
6.10 General Pollution Control 37
6.11 Land-based Contamination 38
6.12 Waste 38
6.13 Ecology (Species Mitigation and Precautions Required) 39
6.13.1 Notable Plant Species and Priority habitats 39
6.13.2 Bats 40
6.13.3 Breeding Birds 40
6.13.4 SPA Breeding Seabirds 41
6.13.5 Non-breeding SPA Birds / Overwintering Birds 41
6.13.6 West European Hedgehog 42
6.13.7 Badger and Common Toad 42
6.13.8 Reptiles 43
6.13.9 Invertebrates: Stag Beetle 45
6.13.10 Marine Mammals (Harbour and Grey Seals) 45
6.13.11 Migratory Fish 45
6.13.12 Marine Invasive Non-native Species 45
6.13.13 Schedule 9 Plants: Japanese Rose and Three-cornered Garlic 45
6.13.14 Trees 46
6.13.15 Saltmarsh 48
6.14 Archaeology and Heritage 51
6.15 Planting and Landscaping Works 51
6.16 Reinstatement of Site 52
6.16.1 Foreshore 52
6.16.2 Compounds and Haul Roads 52
6.16.3 Public Rights of Way, Footpaths and Cycle Routes 53
6.16.4 Highways and Street Furniture 53

6.16.5 Habitats and Landscaping 53
6.16.6 Inspection and Verification 54
7 Management of Flood Risk during Construction 55

Appendix A1: Detailed Method Statements

Appendix A2: Methodology and Sequencing Overview

Appendix B: Reptile Mitigation Strategy

Appendix C: Marine Biosecurity Plan

Appendix D: Ornithological Watching Briefs

1 Introduction

The scope and requirements of this CEMP cover the activities and operations undertaken by the whole project team. This includes the Coastal Partners (CP) on behalf of Havant Borough Council (HBC), the principal contractor and any sub-contractors during the works. All of these parties will collectively be referred to in this document as the 'Project Team'.

It describes the environmental management to be implemented during the Langstone Flood and Coastal Erosion Risk Management (FCERM) Scheme construction works. It will serve the following purposes:

- It will be briefed to the Site Management Team to ensure that they are aware of the environmental constraints and requirements of the project.
- It will inform the induction and Tool Box Talks (TBT) for all site operatives to ensure that they are aware of the key environmental risks and controls expected for their tasks.
- It will inform task specific Risk Assessment and Method Statements (RAMS) throughout the project. These will be briefed to all operatives prior to the commencement of tasks.
- It will be reviewed at each Progress Meeting and updated as the project progresses, keeping it a live document. At all times it will continue to comply with the approved Environmental Impact Assessment (EIA) mitigation plan.

1.1 Planning Conditions

This Construction Environmental Management Plan (CEMP) seeks to satisfy the following planning condition:

4. No development shall take place until a Construction Environmental Management Plan (CEMP), informed by the Outline Construction Environmental Management Plan (Coastal Partners, February 2025) and incorporating the detailed mitigation measures set out in the submitted Environmental Statement, has been submitted to and approved in writing by the Local Planning Authority.

The CEMP shall set out the strategy and detailed method statements for work in the relevant area and shall include:

1. Development contacts, roles and responsibilities

2. An indicative programme for carrying out of the works

3. the parking of vehicles of site operatives and visitors

4. a public communication strategy, including a complaints procedure

5. loading and unloading of plant and materials

6. storage of plant and materials used in constructing the development

7. the erection and maintenance of security hoarding including decorative displays and facilities for public viewing, where appropriate

8. wheel washing facilities

9. measures to control the emission of dust and dirt during construction

10. a scheme for recycling/disposing of waste resulting from demolition and construction works

11. Storage of construction materials/chemicals and equipment;

12. Chemical and/or fuel run-off from construction into nearby watercourse(s) or the marine environment

13. Waste disposal

14. Measures to ensure no uncontrolled materials, machinery, vehicles or works will encroach on the designated site

15. Measures to ensure no uncontrolled abrasion/ disturbance of the substrate and suspended sediment/smothering/siltation considerations (silt curtains, tidal restrictive working and work areas, defined haul routes)

16. Timings of certain works to avoid bird sensitive seasons.

17. Detailed methodology on the reinstatement of any disturbed or temporarily lost habitats

18. Demonstration that the existing standard of flood protection is not reduced whilst the works take place (These mitigation measures shall be fully implemented prior to occupation and subsequently in accordance with the scheme's timing/phasing arrangements).

19. Details of all measures required to avoid, reduce and mitigate potential impacts on European designated sites, nationally designated sites and their qualifying features/interest features during the construction phase.

The approved CEMP shall be fully implemented and maintained throughout the construction period, and all development shall thereafter be carried out in strict accordance with the approved CEMP unless any variation is first agreed in writing by the Local Planning Authority.

***Reason:** To provide ecological protection and enhancement; to avoid, reduce and mitigate adverse effects on European and nationally designated sites and their interest features; to safeguard the standard of flood protection during construction of the flood defences; and to minimise impacts on the amenities of nearby residents, in accordance with the Environment Act 2021, the Conservation of Habitats and Species Regulations 2017, the Wildlife and Countryside Act 1981, the Natural Environment and Rural Communities Act 2006, Policies CS11 and DM10 of the Havant Borough Local Plan (Core Strategy) 2011, and the National Planning Policy Framework.*

1.2 Detailed Risk Assessment

The risk and controls outlined in this document have been assessed based on the Environmental Statement and its associated reports. Detailed risk assessments for each task (site set up, concrete placement etc.) will be carried out during the production of each RAMS, which will include an assessment of environmental risk and control measures.

1.3 Monitoring

The environmental controls will be reviewed as the project progresses, both in progress meetings on site and through regular inspections.

1.4 Key environmental constraints

A number of environmental designations are located within or adjacent to the scheme boundary. These are shown on **Figure 1-1** below. Potential impacts to these designated sites have been assessed within the schemes Environmental Statement [ES], Habitat Regulations Assessment [HRA], Water Framework Directive [WFD] Assessment and Heritage Statement. Other specific surveys were also undertaken to advise the impact assessment process. Where potential impacts have been identified, mitigation has been identified to remove or reduce the potential impact. Specific mitigation associated with archaeology is set out within the Archaeological Mitigation Strategy.

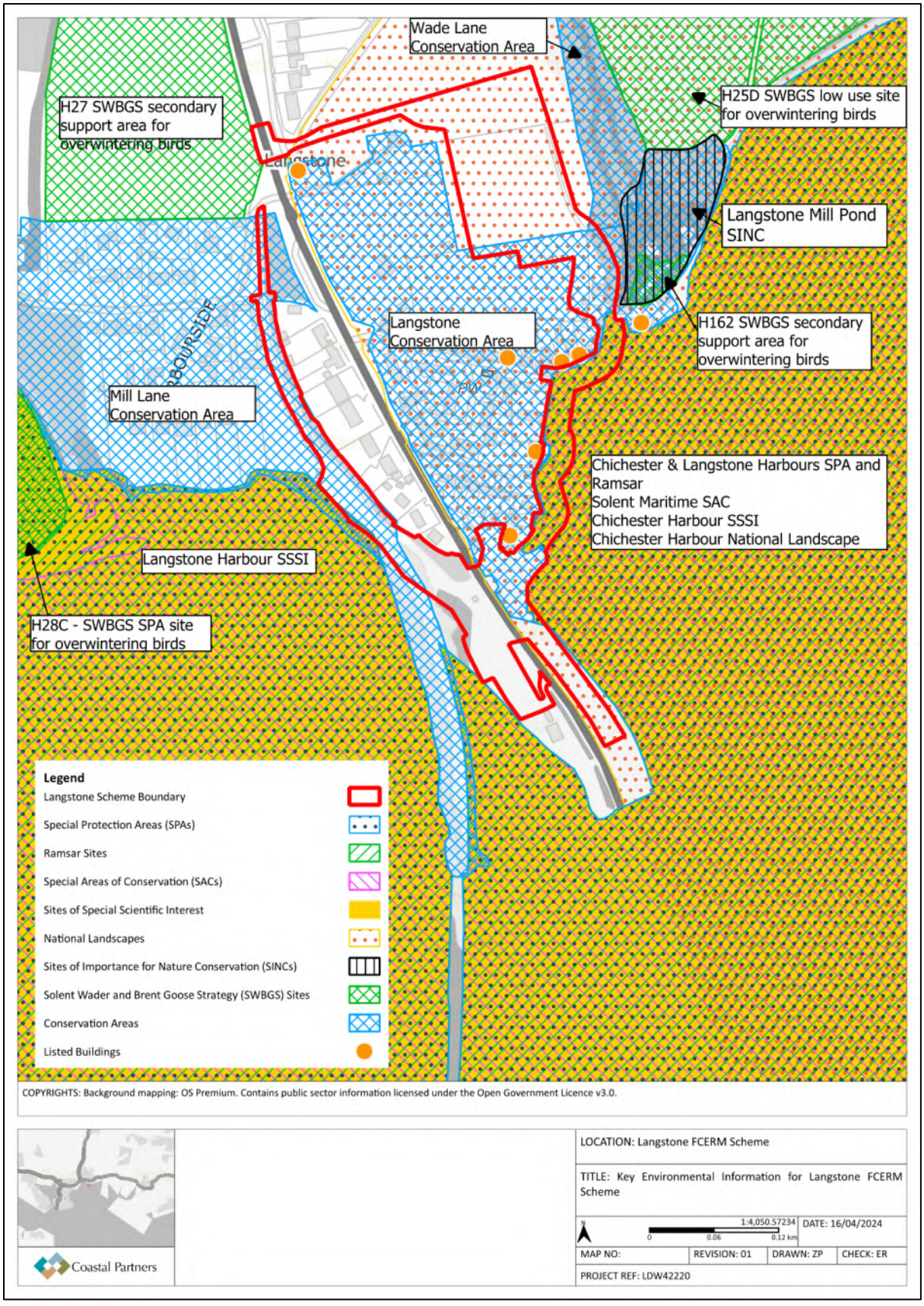

Figure 1-1 Key Environmental Information for Langstone FCERM Scheme Construction Works (indicative red line).

2 Site Location and Project Description

The proposed coastal defences consist of a mix of earth bunds, reinforced concrete sea walls and sheet pile walls, as described below.

- **Frontage 1A: Billy Line North.** The flood defence comprises of a raised earth embankment and follows the line of the existing Billy Line cycleway (a National Cycle Route 2 cycleway). The existing cycle path is to be upgraded to a new 3 metre wide shared path for pedestrians and cyclists which sits on top of the flood embankment.
- **Frontage 2: Billy Line South.** The design for Frontage 2 consists of a sheet-piled wall. Raised earth embankments are included where the defence alignment needs to cross existing utility pipes. The existing cycle path is to be upgraded to a new 3 metre wide shared path for pedestrians and cyclists which sits adjacent to the sheet-piled wall. Frontage 2 ties in with Frontage 1A and the existing higher levels on the A3023 road.
- **Frontage 3: A3023 road to 9 Coastguard Cottages (The Look Out).** Frontage 3 consists of a continuous flood defence that largely comprises of four flood defence structures. These structures include the A3023 flood wall, Ship Inn car park raised earth bund, Ship Inn flood wall and Ship Inn Annex flood wall. A flood gate is also to be provided between the Ship Inn and the Ship Inn Annex flood walls.
- **Frontage 4: The Look Out to No. 24 Langstone High Street (the Winklemarket).** Frontage 4 consists of new reinforced concrete flood walls in front of the existing garden walls that run along the frontage. The existing footpath is to be upgraded to a new 1.5 metre wide footpath through the construction of a new quay wall, to improve user accessibility of the route. One flood gate (at Green Cottage) and one demountable flood barrier (at the pedestrian access adjacent to the Watch Tower) will be provided to ensure robust continuity of the defence.
- **Frontage 5: Langstone High Street to the field north of the Royal Oak.** Frontage 5 consists of a continuous flood defence that largely comprises of five structures. These structures include the High Street flood gates, the Royal Oak flood wall, the allotment flood wall, the Footpath flood wall that runs west of the Mill Pond, and an earth embankment in the field north of the Royal Oak. Demountable flood barriers will be provided between the section transitions and flood gates will be provided at No.21 High Street.

Figure 2-1 shows the various frontage of the Langstone FCERM Scheme.



Figure 2-1 The location and extent of the Langstone FCERM Scheme

2.1 Construction Timings, Anticipated Sequencing and Methods

The main construction works for the Langstone FCERM scheme are scheduled to be undertaken between April and September 2027, with some terrestrial based landscaping works likely to continue into October 2027. Ecological constraints restrict the timing of certain activities, with no construction works taking place in Frontages 2, 3, 4 and between chainage 0-110 in Frontage 5 during the over-wintering bird period (October to March inclusive).

Table 2.1 below specifies the permitted timescales for activities associated with the scheme.

Some limited vegetation clearance has been undertaken in August/September 2026 to allow the translocation of reptiles. The remaining enabling works, including setting up the main site compound, connection of services, service diversion works and the main vegetation clearance is planned for January – March 2027**. Table 2.2** sets out the high-level proposed construction programme. This may need to change in response to unexpected conditions. But it shows the general sequencing across all frontages. A construction Methodology and Sequencing Overview can be found in **Appendix A1**, with detailed method statements in **Appendix A2.**

Table 2.1 Permitted timings for activities

Specified Work Timescales	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Construction works in Frontage 2, 3, 4 and between chainage 0-110 in Frontage 5 are not permitted during over-wintering bird period (October to March inclusive).												
Piling work and trench sheet installation between chainage 110-185 in Frontage 5 are not permitted during the overwintering bird period (October to March inclusive).												
Use of a wacker plate or compacting plant with a similar noise profile are not permitted between chainage 120-188 in Frontage 1A during the overwintering bird period (October to March inclusive).												
Vegetation clearance in Frontage 5 is not permitted during the breeding bird season (March-August inclusive) to avoid disturbance of the egret/heron nesting colony. In addition no night working in vicinity of egret/heron roost and watching brief required.												
Vegetation clearance in Frontages 1A, 2, 3 and 4 during the breeding bird season (March-August inclusive) will require an ecologist to be present.												
Landscaping works.												

Key

	Specified works prohibited
	Specified works permitted with qualified ecologist present
	Specified works permitted

Table 2.2 Outline Programme (subject to change due to project delivery requirements)

Tasks	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Reptile clearance and mitigation (initial limited vegetation clearance requiring Billy Path closure)																	
Short duration ground investigation works for Permanent and Temporary works design																	
Compound establishment including A3023 entrance and vegetation clearance																	
Frontage 1A																	
Vegetation clearance																	
Construction of raised path																	
Frontage 2																	
Vegetation clearance																	
Construction of raised path and sheet pile cut off																	
Frontage3																	
Stats diversions																	
Ship Inn foreshore wall																	
Flood walls cladding works																	
Ship Inn car park raising																	
A3023 flood wall																	

Stats diversion works – A3023																		
Frontage 4																		
Stats diversions																		
Flood walls civils works																		
Flood walls cladding works																		
Frontage 5																		
Stats diversions																		
Royal Oak foreshore wall																		
Allotment wall																		
Flood gates																		
Footpath wall																		
Frontage 5 bund																		
Flood walls cladding works																		
Landscaping																		
Compound and A3023 removal																		

3 Working Hours

Normal Working Hours: Monday - Friday (0700 - 1900)

Whilst the construction programme has been planned around the tide tables, due to nature of works within Frontages 3, 4 and 5, it may be necessary for some works to be undertaken outside of these hours e.g. during evening/nighttime periods or over a weekend. This will be agreed with the Local Planning Authority in advance and local residents will be informed using the communication channels set out in Section 5.

Works affecting the A3023 will need to be undertaken at night, as per the constraints set by the Highways Authority. Once the final details are agreed via the s278 process, they will be submitted to the Local Planning Authority. This information will also be set out within the Section 61 application.

3.1 Communication

A Stakeholder Management Plan will be implemented to keep all property owners, businesses and the wider local community updated on progress and any changes to the construction works. Regular communications will continue in the form of our newsletters, webpage updates and social media posts.

We have a dedicated email address for the project (langstonecoastalscheme@havant.gov.uk) which can be used to issue updates, received queries, compliments and complaints.

Site information boards will be used and scheduled drop-in events can be planned for specific updates, when required.

Other methods to be used include stakeholder and householder letter drops and door-to-door knocks. These methods will used for major works updates, notification of out of hours working or any oversized deliveries.

3.1.1 Complaints procedure

A project email address and direct telephone numbers will be used for anyone wishing to complain or raise concerns. Visits to the site offices will be available, where discussions can be held and minutes taken to formally record. Complaints will be reviewed at weekly meetings and used to inform mitigation and sequencing. Unresolved complaints will be escalated to the Project Manager without delay and they will decide if further escalation is required. A named contact will be provided and out-of-hours arrangements for urgent concerns. In lien with the communication methods above, we will provide advance notification to affected stakeholders and the LPA before piling, breaking, extended working hours, night works or other high-impact activities. Any communications will explain the nature, expected duration and purpose of noisy works in plain language.

All complaints shall be:

- Logged upon receipt.
- Investigated by the Site Manager and Environmental Manager.
- Reviewed against monitoring records.

- Responded to promptly.
- Closed only after appropriate actions have been implemented.

A complaints register shall record:

- Date and time.
- Complainant details.
- Nature of complaint.
- Investigation findings.
- Actions taken.
- Date closed.

3.2 Project Organisation

The organisational structure for the Langstone Coastal Defence Scheme is presented in **Table 3.1**. All project personnel are responsible for undertaking their duties in accordance with the requirements of this CEMP. Ultimate responsibility for delivery of the works rests with the Principal Contractor, whilst Coastal Partners, acting on behalf of Havant Borough Council, retains overall client oversight of environmental compliance and project governance.

Table 3.1 Project team roles and responsibilities

Organisation	Role	Key Responsibilities
Coastal Partners on behalf of Havant Borough Council	Client / Applicant	Overall project governance and delivery; obtaining and complying with planning permissions, licences and consents; stakeholder engagement; oversight of environmental commitments; approval of project decisions and completed works.
Coastal Partners	Project Manager	Primary point of contact between the Client, Contractor and Consultant team; oversight of programme, cost, quality and environmental performance; ensuring project objectives and statutory requirements are met.
AECOM	Design Consultant	Preparation and development of the scheme design; provision of technical advice during construction; review of contractor technical submissions; support with compliance against design requirements, consents and project specifications.
Wessex Archaeology	Heritage Consultant	Provision of specialist heritage and archaeological advice; review of heritage-related construction activities; support implementation of mitigation measures; liaison with relevant heritage stakeholders as required.
Jackson Civil Engineering	Principal Contractor	Management and delivery of all construction activities; preparation and implementation of the CEMP; management of subcontractors; health, safety

		and environmental compliance; community liaison; reporting of incidents, inspections and corrective actions.
Coastal Partners	Environmental Lead	Oversight of environmental compliance; monitoring implementation of mitigation measures; liaison with environmental regulators and stakeholders; review of environmental performance; auditing compliance with the CEMP and relevant consents and conditions

3.3 Emergency Contacts

Emergency Incident Contacts
• **In an emergency - follow the appropriate 'Emergency Incident Plan (EIP)'**. The EIP will be located in the main site office and stored on the project SharePoint (to be produced by the contractor) and briefed to all staff during site inductions. This includes all contact numbers and required actions to be taken. Key phone numbers below • Any fuel, oil or chemical spill within the marine environment will be reported immediately to: - The Environment Agency (incident hotline Tel. 0800 807060); - Marine Management Organisation (Tel. 0300 200 2024 - within office hours; 07770 977825 - outside office hours; 0345 051 8486 and dispersants@marinemanagement.org.uk - if the previous two numbers are unavailable); - The Site Supervisor and Project Manager. - JCE on call spill contractor: Adler and Allen 0800 592 827

4 Site Set Up

4.1 Vegetation Clearance

Areas of vegetation will need removing prior to the start of the works. All vegetation clearance will be undertaken in accordance the approved site clearance and tree protection plans. The following steps will need to be taken.

- Translocate the Golden Samphire plants from the old revetment at Frontage 3 to areas with suitable conditions and/or create areas with suitable conditions for assisted colonisation. See **Section 6.12.1** for further details regarding other notable plant species and priority habitats.
- Bat surveys must be conducted on trees due to be felled or pruned if there is any possibility of bats using them as roosts. See **Section 6.12.2** for further details regarding bats.
- Vegetation clearance in Frontage 5 is not permitted during the breeding bird season (March-August inclusive) to avoid disturbance of the egret/heron nesting colony. See **Section 6.12.3** for further details regarding breeding birds.
- Vegetation should be removed prior to the start of works and outside of the bird nesting season (March to August inclusive) where possible. If this is not possible, all potential habitat that needs to be removed will be carefully examined by a suitably experienced and qualified ecologist. If nests are found, work in that area will stop, and a 5m buffer will be placed around the nest. Clearance would only be undertaken once the nest becomes unoccupied of its own accord. See **Section 6.12.3** for further details regarding breeding birds.
- Any dense vegetation clearance (e.g. hedgerows / along the Hayling Billy trail) should initially be checked for hedgehogs prior to removal. See **Section 6.12.6** for further details regarding hedgehogs.
- The area to be cleared in Frontage 1A and 2 should be checked for any stag beetle larvae and / or adults by a suitably qualified and experienced ecologist. Any stag beetles or larvae found should be carefully translocated to a suitable natural or purpose-built habitat close by. See **Section 6.12.9** for further details regarding stag beetles.

5 Compounds, Access and Haul Routes

One primary site compound and one satellite compound is proposed as illustrated on **Figure 5-1. Figure 5-1** also shows the various access points, both to the compounds and to the works areas. Full details of access arrangements, construction traffic routing, stakeholder access provisions, traffic management measures and diversion routes are provided within the Construction Traffic Management Plan (CTMP).

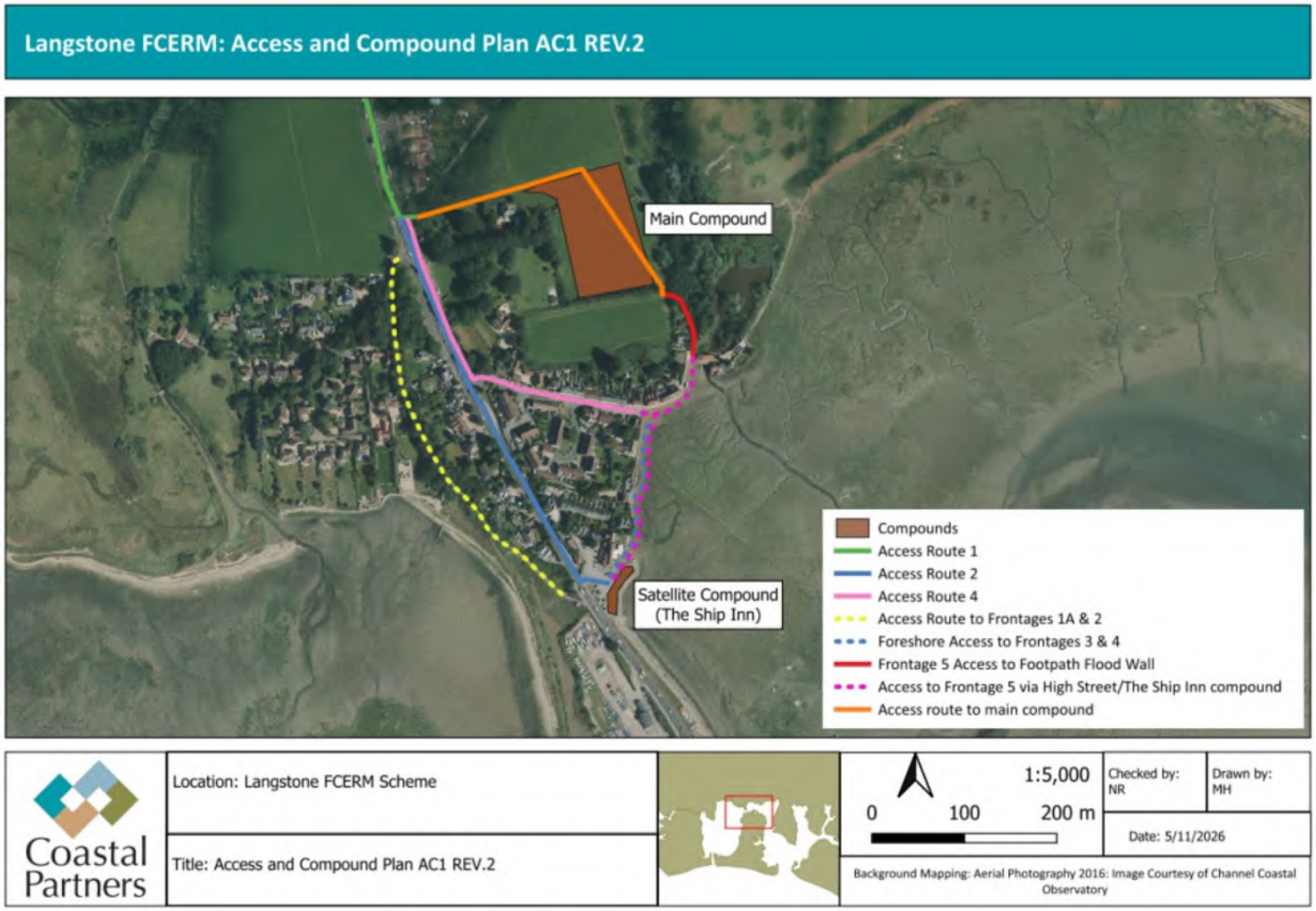

Figure 5-1 Overview of location of compounds and extent of main access routes

5.1 Main Compound

The main site compound will remain in situ throughout the construction of the Langstone FCERM scheme, located in the fields to the north of the Royal Oak (Langstone Meadows) as shown in Figure 5-1 above. The location has been selected to provide direct access from the A3023 whilst minimising disruption to local residents, by minimising construction traffic movements through Langstone village and along Langstone High Street.

5.1.1 Compound Layout

This compound will be located in the middle field at Langstone Meadows and positioned as far as reasonably practicable from adjacent residential properties. The compound layout has been developed to provide safe vehicle manoeuvring, sufficient parking and welfare facilities, and adequate storage of plant and materials, whilst minimising impacts on neighbouring receptors. **Figure 5-2** shows the overall layout, including the access/haul route, whilst **Figure 5-3** shows the detailed layout of the main compound area.

The compound will include:

- Two-storey stacked modular site offices and meeting rooms
- Welfare facilities, including toilets, drying rooms and canteen facilities
- Fuel storage area
- Workforce and visitor parking
- Material storage areas
- Skip and waste management areas
- Designated loading and unloading areas
- Vehicle turning areas
- A prefabrication area for reinforcement cages and formwork.

The prefabrication area shall be used to construct the concrete shutter forms and the rebar cages; these shall then be transported out to site on a “just in time basis”. This approach reduces site storage requirements at the satellite compound, minimises the number of large deliveries to the satellite compound and allows works to continue during high tides when Frontages 3,4 and 5 are flooded out.

The compound perimeter will be secured with double clipped Heras fencing and supplemented by CCTV monitoring.

When establishing the compounds tree protection fencing shall be erected as required and topsoil shall be stripped to protect the natural resource and stored in segregated stockpile bunds – where possible this may be placed to reduce noise impact to local stakeholders and the environment.

Upon completion of the construction works, the temporary works used to construct the temporary site compound such as drainage, geotextile and stone will be removed, and topsoil reinstated. Additional agricultural treatment is likely to be required, this could involve ripping the subsoil (due to compaction), importing further topsoil and seeding.

Topsoil will be stripped and set aside in a bund for reinstatement on completion. Geotextile will be laid on the subsoil. Where required temporary plastic surface water drains will be installed under the track, perpendicular to it to reduce localised surface ponding to the existing Langstone Meadows due to the raised access track and to allow formation drainage. Drainage swales may be installed along the access track and around the compound to control field and to control and treat compound runoff. Crushed concrete will then be laid followed by a running surface of graded stone such as MOT type 1. A similar construction will be required for the material storage areas, car park and office/welfare set up.

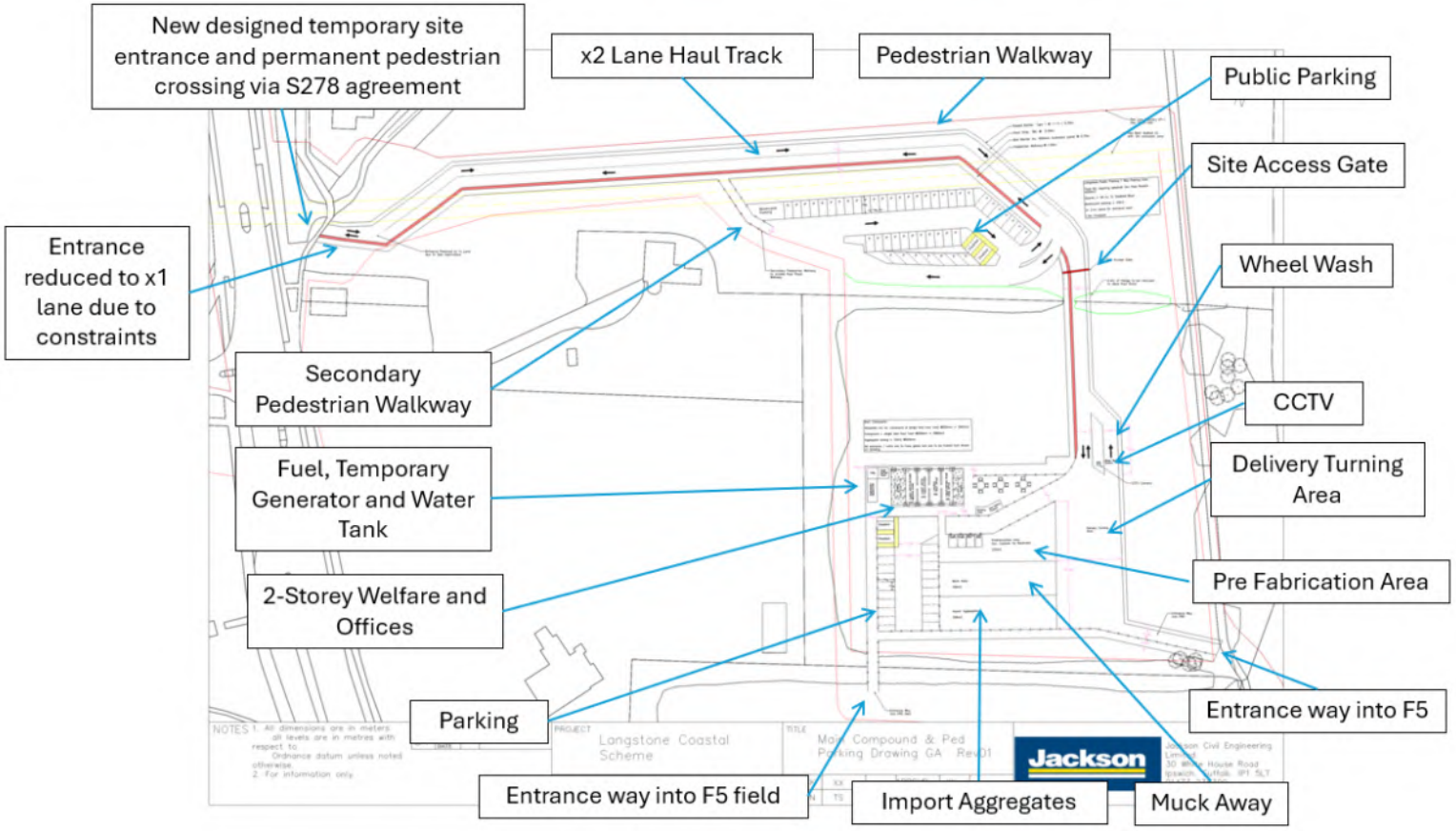

Figure 5-2 Primary site compound (main compound) overall layout

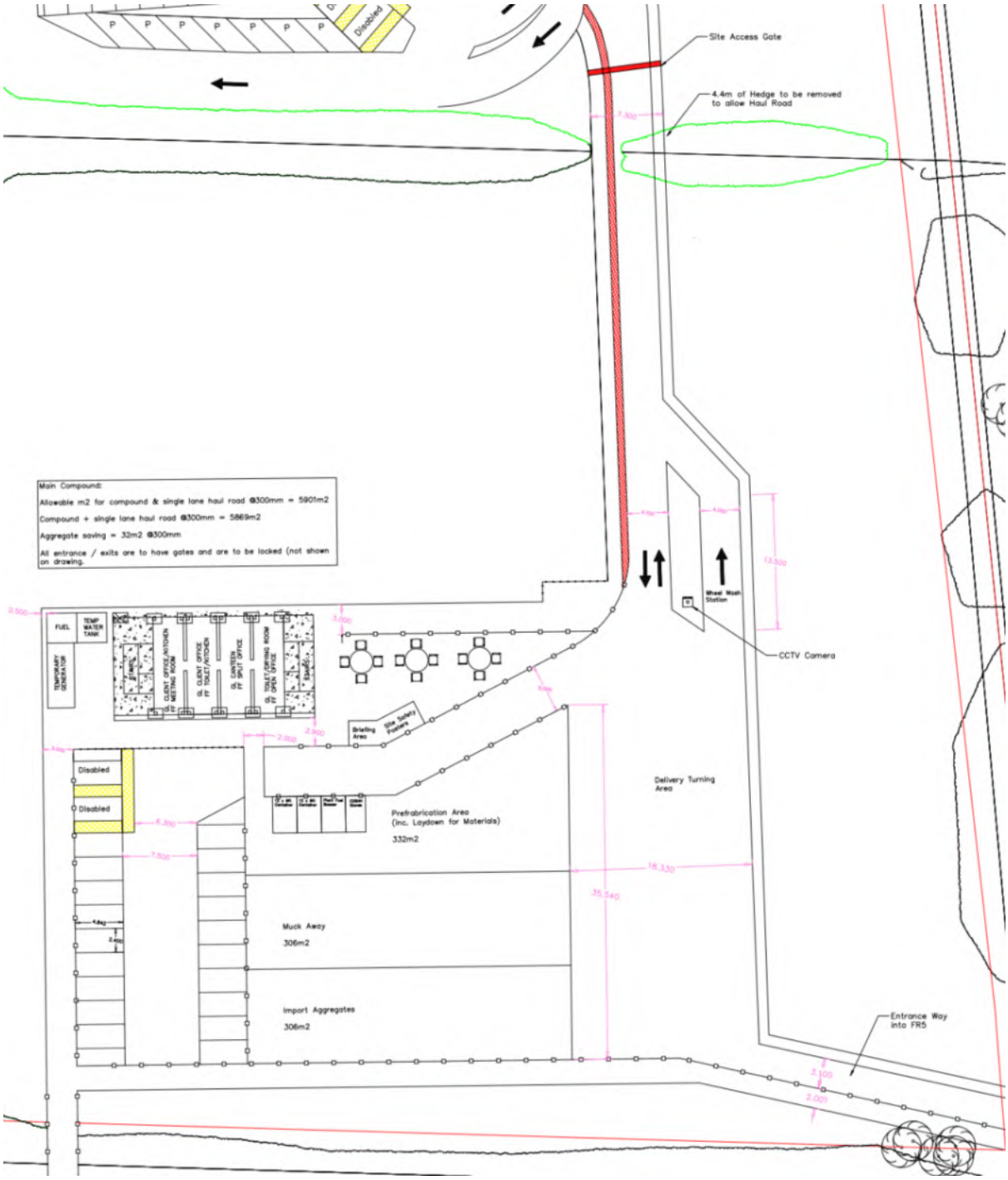

Figure 5-3 Primary site compound (main compound) layout

5.1.2 Parking and Workforce Management

The main compound will act as the central location for site personnel and construction deliveries throughout the project.

An area of hard standing will provide approximately 30 parking spaces for site personnel and visitors, as well as an area of public parking (see **Section 5.2.1** below). Charging points for electric/hybrid cars and electric site equipment is planned provided DNO authorisation.

Workforce parking will be accommodated entirely within the main compound – parking will not be permitted on surrounding residential roads.

Workforce inductions, daily briefings and visitor sign-in procedures will be undertaken within the main compound prior to site personnel travelling to the relevant work front of satellite compound. Walking and vehicle sharing shall be required for travel to and from work frontages and satellite compounds

5.1.3 Access

Vehicle access to the compound will be provided from the A3023 via a temporary access junction. Once the access junction is operational, construction traffic will enter and exit the compound without the need for traffic management on the public highway.

Access to all site compounds will be managed to ensure that only authorised personnel are able to gain access to the site. A log of incoming and outgoing staff, plant and vehicles will be kept ensuring that during the construction phase, whereabouts of all personnel working on the project is known in the event of an emergency.

The haul route between the A3023 and the main compound has been designed to accommodate two-way traffic movements. The compound entrance gate will be set back from the highway, beyond the public parking provision, to allow vehicles to wait clear of the highway prior to entering the site, preventing stacking of vehicles onto the highway.

The internal layout of the compound has been designed to enable construction vehicles, including HGVs and low-loaders, to manoeuvre safely within the site and exit in a forward motion.

Segregated pedestrian routes shall be provided throughout, with designated plant crossing places as required. A site speed limit of 15mph will apply within the compound and shall be signed to inform drivers of site requirements. Wheel wash facilities shall be positioned at the exit from the compound, within the middle field, prior to the public parking provision.

5.1.4 Dust Control

The compound shall be constructed from 6F5 and Type 1 MOT with topsoil having been stripped to sub soil levels and a geotextile being placed to prevent migration of compound materials into the subsoils. Frequently trafficked areas shall be sealed to prevent dust and debris from becoming airborne or being tracked out onto the highway network.

Wheel wash facilities shall be situated at the access egress points of the main compound and satellite compounds on an area of metalled surface to minimise nuisance dust and mud from being deposited on the public highways. The site access will be routinely inspected by the site foreman, and a road sweeper shall be available on call to clean the affected highways should any material be deposited.

Further dust control measures to compound and works areas are discussed within **Section 6.9.**

5.2 Satellite Compounds

5.2.1 The Ship Inn Satellite compound (Frontage 3)

A satellite compound is to be located on Hampshire County Council-owned land adjacent to The Ship Inn public house, as shown on **Figure 5-1** above**.** The location, known colloquially as The Ship Inn parking area, has all necessary landowner agreements in place.

The satellite compound will support construction activities within the adjacent work areas and will remain operational for the duration of the works - see outline programme in Section 11. It will provide local welfare facilities, plant and equipment storage, and temporary storage of non-bulk materials required for the adjacent construction works. The set up of the satellite compound is shown on **Figure 5-4**.

The main compound will remain the primary location for workforce management. Employees would be expected to return to the main compound at the start and end of shifts and for any significant briefings. Parking at the satellite compound shall be limited to essential vehicles only, with the majority of workforce vehicles to be parked at the main compound.

Access to the satellite compound will be managed to ensure that only authorised personnel are able to gain access to the site. A log of incoming and outgoing staff, plant and vehicles will be kept ensuring that during the construction phase, whereabouts of all personnel working on the project is known in the event of an emergency. Further details on specific access points proposed for the site are provided below.

A maximum speed limit of 10mph will apply within the satellite compound and associated working areas. This will be communicated through appropriate signage and will assist in maintaining site safety and for the control of dust. Fully segregated pedestrian access routes will be provided where possible.

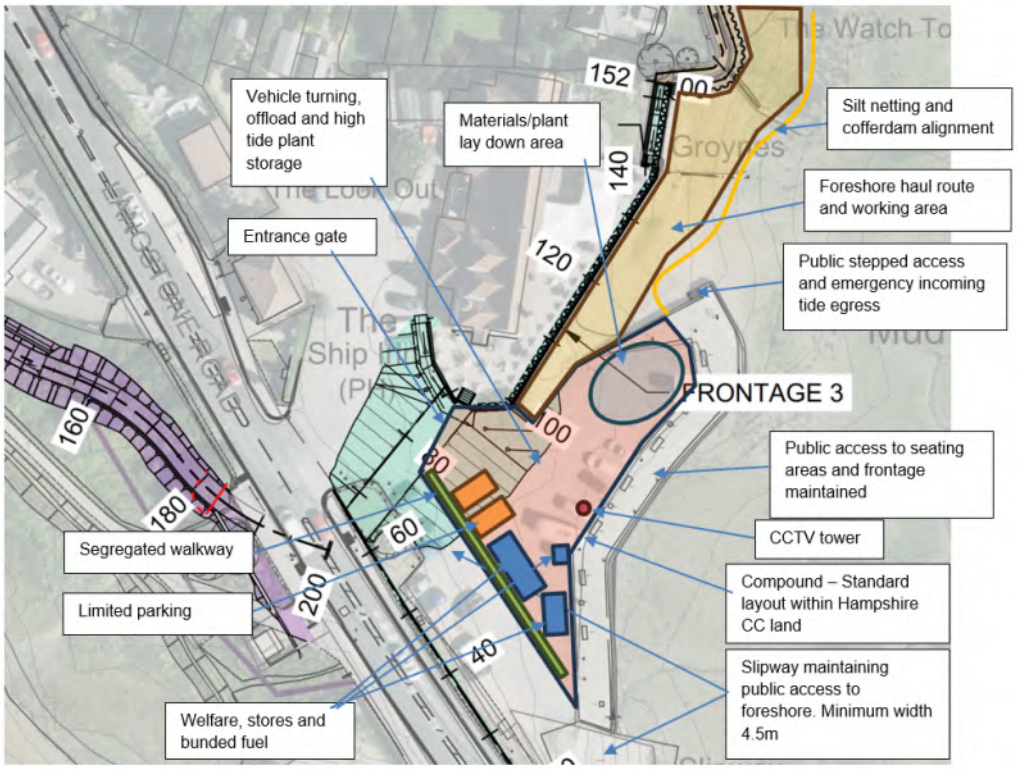

Figure 5-4 Ship Inn/Frontage 3 satellite compound standard set up

The compound will service the main Frontage 3, 4 & 5 works. It will remain operational for the duration of these works and will be used during the demobilisation of the main compound. The compound will be required from April 2027.

Due to tidal constraints affecting the foreshore work areas, the compound will also be used to store plant and equipment during periods of high tide where plant and equipment cannot be left within the work areas due to tidal flooding. As a result, the compound will be of substantial size and shall incorporate the majority of Hampshire-owned land within this area.

During construction of the flood defence bund, the compound footprint shall be temporarily increased to incorporate the extents of the works. The bund will be constructed in two parts to maintain slipway access.

Throughout the works, public access will be maintained to the southern slipway except for when the A3023 cut off wall is being constructed, which may require short duration closures. Any such closures will be managed by traffic marshals.

Access to the slipway and pedestrian seating area shall be segregated to the west of the compound allowing for silt curtains to be installed to the length of the Frontage 3 and 4 tidal haul route connecting to the eastern slipway.

To reduce overall visual impact of the works and ensure public safety, the compound shall be secured and segregated from the public using solid metal type hoarding.

Access gates shall be set back away from the highway boundary, along with deliveries first attending the main compound, will prevent any stacking of vehicles out on the highway.

The satellite compound shall consist of:

- Two-storey stacked 24-foot welfare units incorporating a solar battery electrical system with backup diesel generator
- 15-foot storage container
- Bunded diesel bowser
- Tidal plant storage area
- Materials set down area
- Limited parking for essential site van and engineer vehicles
- A solar-powered CCTV tower provide site security and remote monitoring
- A temporary visitors project information board will be located adjacent to the compound in a publicly accessible location to provide information on the works and communicate project updates to stakeholders and interested parties.

Construction of the compound will result in the temporary loss of existing public parking spaces within the area. To minimise impacts on local parking provision, temporary public parking will be provided within the main compound. Approximately 48 parking spaces, including 2 disabled spaces will be made available for public use for the duration of the works. A segregated pedestrian route, incorporating temporary lighting, will be provided between the public parking area and the A3023 to ensure safe pedestrian access at all times. Refer to **Figure 5-5** and **Figure 5-6**.

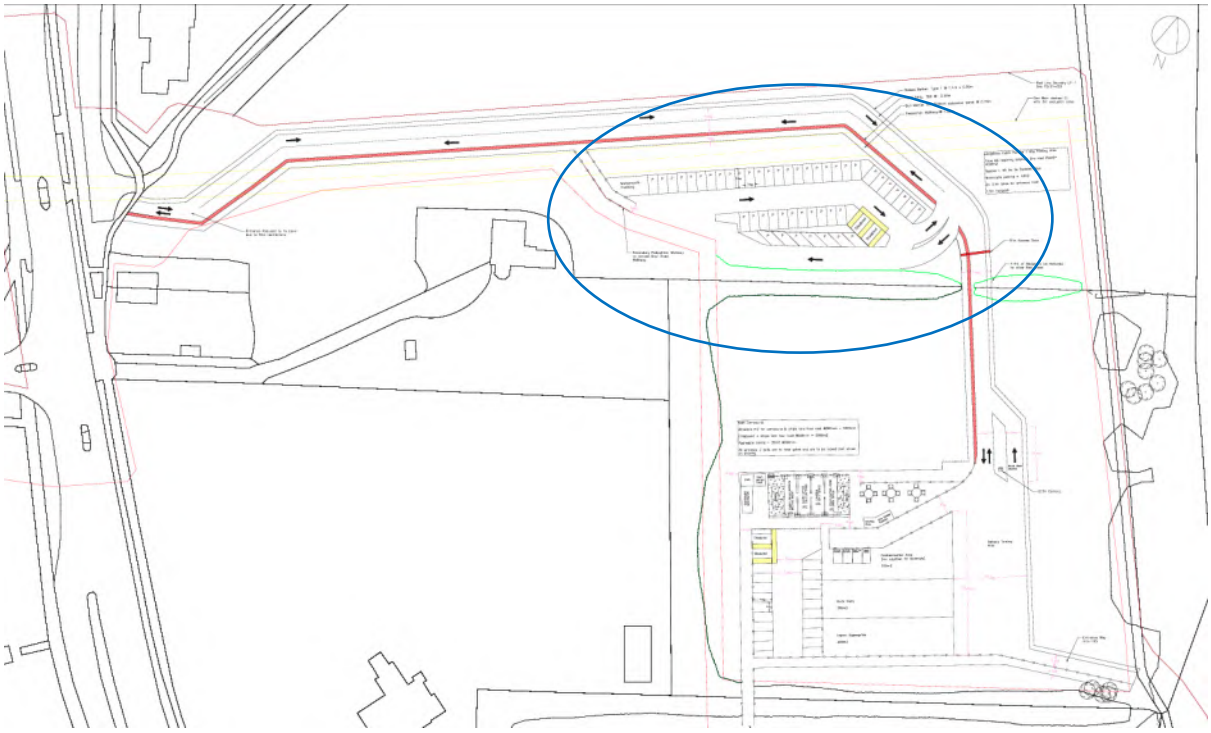

Figure 5-5 Location of Public Parking

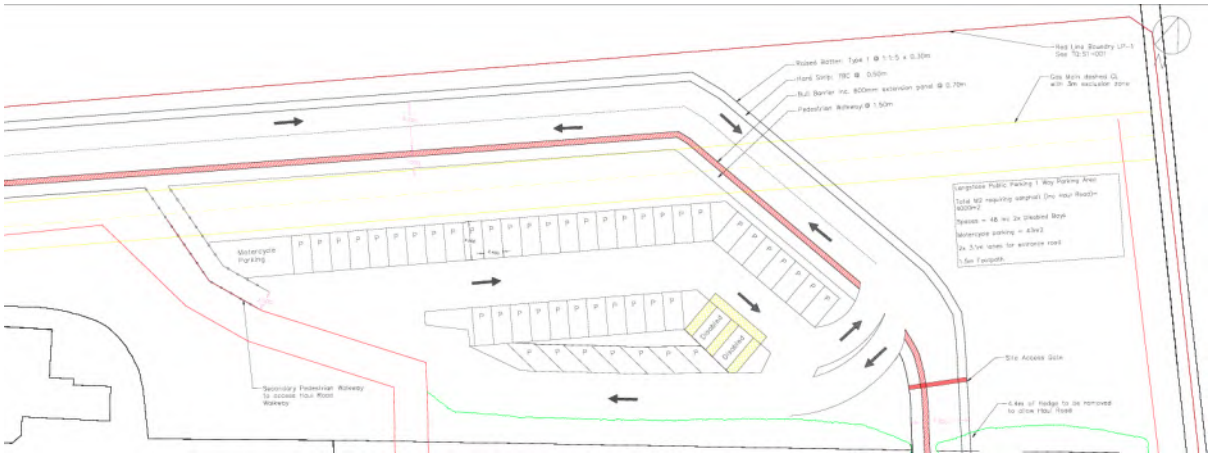

Figure 5-6 Public Parking Details

A small set-up will be required from January 2027 until April 2027 to service utility diversion works, junction works on the A3023 and main compound set-up – refer to **Figure 5-7**. This smaller set-up will allow for:

- Portable welfare unit
- Container stores
- Plant storage – 8t excavator & 5t dumper
- Material laydown area



Figure 5-7 Satellite Compound (small set-up)

5.2.2 Frontage 1A/2 Satellite Welfare

Frontage 1A/2 satellite welfare will be located within the active construction works area and relocated as construction progresses, commencing at the southern extent of Frontage 2 and moving northwards as required. It will be secured by the Frontage 1A and 2 site perimeter fencing, comprising Heras fencing and existing boundary 1.8m timber panel fencing. Access shall be via Mill Lane – see **Figure 5-1.**

The satellite welfare will be significantly smaller than the Frontage 3 satellite compound due to the nature of works. Facilities will comprise a small welfare trailer and limited materials storage. The majority of small tools, materials and road going plant will be stored in the main compound and delivered to the work area on an as-required basis.

The welfare will remain operational only for the duration of the works within Frontages 1A and 2 and will be relocated as construction activities progresses through the frontage.

No additional vegetation clearance is anticipated specifically for the welfare, as it will be located within the footprint of the proposed Frontage1A and 2 construction. Any vegetation clearance will be the same as that proposed for the constructions works on this frontage and has been included in the detailed design clearance plans.

5.3 Traffic Management and Public Access

Construction traffic, deliveries, workforce movements, temporary traffic management measures and public access arrangements shall be undertaken in accordance with the approved **Construction Traffic Management Plan (CTMP)**. The **CTMP** sets out the detailed access routes, construction compounds, delivery restrictions, traffic management proposals, parking arrangements and public diversion routes for the duration of the works.

The principal strategy for minimising traffic impacts is to utilise the main compound at Langstone Meadows as the primary delivery, storage and workforce management hub. Deliveries will be scheduled and coordinated to avoid peak traffic periods where practicable, with construction traffic distributed to the relevant working frontage following initial reporting to the main compound. As already set out, vehicle marshals will be used where required to safely manage deliveries, plant movements and access to work areas. Wheel washing facilities will be provided at compound exits and a road sweeper will be available as required to prevent mud, dust or debris being deposited on the local highway network.

Construction traffic routing has been developed to minimise disruption to local residents, businesses and visitors whilst maintaining highway safety. Temporary traffic management measures, including temporary traffic signals, lane management, traffic marshals and pedestrian management, will be implemented where required for specific highway works, utility diversions and construction activities. All necessary highway approvals, permits and agreements will be obtained before such measures are implemented.

Access to residential properties, businesses, public facilities and emergency routes shall be maintained throughout the construction period wherever reasonably practicable. In particular, pedestrian and vehicular access to properties along Frontages 4 and 5, including properties on Langstone High Street, will be maintained at all times. Access to The Ship Inn, the Royal Oak, slipways and other key facilities will also be maintained except where short-duration closures are essential for specific construction activities. Any temporary restrictions will be

communicated in advance and managed through appropriate signage, traffic marshals and stakeholder liaison.

Temporary closures of footpaths, cycleways and public rights of way will be required in some locations to ensure public safety during construction. Closures will be limited to the minimum extent and duration necessary, and routes will be reopened as soon as it is safe to do so. All closures will be appropriately signed and supported by clearly defined diversion routes, including diversion plans displayed at closure points and key access locations. Alternative pedestrian and cycle routes will be maintained throughout the works wherever practicable. Appropriate fencing, hoarding, gates and segregation measures will be used to separate construction activities from members of the public.

The contractor will maintain regular communication with residents, businesses and local stakeholders regarding any planned traffic management measures, access restrictions, footpath closures or significant deliveries. Advanced notification will be provided where activities have the potential to affect access arrangements or generate increased levels of disruption. Complaints and concerns relating to traffic, access or transport impacts will be managed in accordance with the project complaints procedure.

Following completion of the works, all temporary traffic management measures, compounds, haul routes, access tracks, temporary signage, fencing and associated construction infrastructure will be removed. Public rights of way, cycle routes, pedestrian routes, highways, verges and any other areas temporarily affected by the works will be reinstated to at least their pre-construction condition, unless replacement infrastructure forms part of the approved permanent works. Post-construction inspections will be undertaken and any damage attributable to the works will be repaired accordingly. See **Section 6.15** for more detailed information.

6 Construction Phase

Before the commencement of the works, all crew shall be advised of any risks and/or hazards that are involved with the works by undertaking a site-specific induction and discussing the relevant Risk Assessment and Method Statement (RAMS) for the intended works. All environmental considerations shall be included and highlighted to staff as part of site-based inductions and risk assessments, to be reviewed and signed by all personnel involved with the works.

6.1 Construction Deliveries, Access and storage

Detailed traffic management measures, public access arrangements, diversion routes and stakeholder access commitments are set out in the **Construction Traffic Management Plan (CTMP)**. This section describes the operational requirements for construction deliveries, plant movements and material storage.

6.2 General

All deliveries will initially be directed to the main compound, where materials, plant and equipment will be received, stored and managed before being distributed to the relevant work frontages. This approach will reduce the number of heavy goods vehicle movements within the local road network and minimise disruption to residents, businesses and road users, ensuring vehicles are only received at the various work frontages when space is available.

Access to the various work frontages will be controlled through a limited number of designated access points as shown on **Figure 5-1** above and **Figure 6-1**. The routing of construction traffic has been carefully developed to utilise the most suitable routes for different vehicle types while minimising impacts on local roads, parking provision and sensitive receptors.



Figure 6-1 Traffic Management Plan

The following access points will be used throughout the works:

- **Mill Lane Access** - serving Frontages 1A and 2
- **The Ship Inn Satellite Compound Access** – serving Frontages 3, 4 & 5. Primarily for larger construction vehicles and plant, including excavators, piling equipment and other machinery delivered by low-loader
- **Langstone High Street Access** - serving Frontages 4 & 5. Smaller construction vehicles, including vehicles up to 3.5t (with or without trailers), 6-9t dual-view dumpers, 3t standard dumpers, 7.5t lorries and concrete wagons
- **Footpath Access (adjacent to No. 21 Langstone High Street)** – providing access for plant and equipment associated with the flood defence works adjacent to the footpath, including excavators, 6-9t dual view dumpers, 3t standard dumpers

For Frontages 4 and 5, the access strategy has been designed to maximise the use of a dedicated foreshore haul route extending between The Ship Inn satellite compound and the eastern extents of Frontage 5. Construction traffic entering via either The Ship Inn satellite compound or Langstone High Street can utilise this route to distribute plant, materials and equipment along the frontage. This provides greater flexibility in servicing the various work areas across Frontages 4 and 5.

Further details of each access point, construction traffic controls, delivery restrictions and mitigations are described within the **CTMP**, particularly **Sections 5, 6 and 7**. **Section 4.2** of the CTMP provides details of the temporary junction and necessary relocation of an existing traffic island.

6.3 Use of Machinery / Fuelling / Fuel Spillage

- The Emergency Incident Plan (EIP) will be followed in case of an emergency or accidental spillage and/or pollution incident. This will be briefed by toolbox talk and a physical demonstration practical undertaken.
- Machinery used during construction will be required to adhere to standard best practice measures including pollution control strategies and spillage response.
- Regular and effective maintenance by trained personnel will be undertaken to keep plant and equipment working to manufacturers specifications.
- Plant to be used properly with respect to minimising noise emissions. Modern equipment with exhaust silence systems and incorporated acoustic panelling will be used
- Unnecessary revving of engines will be avoided, and equipment will be switched off when not in use.
- Plant and vehicles will be sequentially started up rather than altogether.
- Appropriate plant and equipment will be used to reduce the noise and vibration levels and shall comply with EU emission limits and any stated requirements of the Local Authority.
- Equipment will be cleaned before delivery to site.

- Machinery (working on or adjacent to the foreshore) will use biologically degradable hydraulic oils.
- Equipment that leaks any fuel, lubricant or hydraulic fluid shall not be used to complete the works and will be removed from site or stored in the compound until repaired.
- Plant will be serviced in designated areas in the compound, away from water courses / drains.
- Fuels, chemicals and other potentially hazardous liquids to be stored outside the designated site areas, at least 10m away from sensitive habitats (such as hedgerows, wet woodland, mixed deciduous woodland, reedbed, vegetated shingle, saltmarsh), and away from water bodies and surface water drains in nearby compounds and to be fully bunded to 110% of the maximum storage capacity and maintained in a secure and clear manner. Delivery and vent pipes shall terminate within the bund. Bio-degradable lubricants to be used.
- All fuelling operations, servicing of equipment and fuel storage to take place away from the foreshore, and at least 10m away from sensitive habitats, in accordance with agreed refuelling risk assessment and method statement.
- Refuelling shall be supervised and shall be carried out by pumping through a trigger type delivery nozzle.
- All plant to be equipped with suitable spill kits and operatives trained in use. Spill kits (including booms for potential leaks into the marine environment) should be kept on site at all times during operation and be available at all fuelling locations.
- Any spillage shall be immediately contained, removed from site and disposed to a licensed tip.
- All compounds shall have spill kits available. All large plant, such as excavators, shall have a small spill kit mounted on or stored within them.
- Potentially hazardous liquids on the application site such as fuels and chemicals will be managed and stored in accordance with best practice guidance, such as the UK Government pollution prevention guidelines (https://www.gov.uk/guidance/pollution-prevention-for-businesses). Storage tank and container facilities will be appropriately bunded within designated storage areas and located away from surface water drains.
- Where necessary, surface drainage will pass via settlement and/or oil interception facilities.

6.4 Foreshore Working

The TBT on environmental sensitivities, foreshore risk assessment and method statement are to be followed at all times.

- All materials used in the Scheme will be suitable for use in the marine environment.
- All operations to be carried out from the landward side wherever possible, however where there is no viable landward option, works will be permitted from the foreshore.

- Where foreshore working is required, the intertidal works area will be restricted to a maximum of 20 metres seawards of the existing defences. The 20m maximum boundary will be marked by the silt curtain.
- A silt curtain will be installed prior to the commencement of any work on the intertidal area to fully contain the current working area and kept in a good working condition (**Figure 6-2)** during the whole duration of the foreshore construction works. This will prevent any suspended sediments migrating into the wider adjoining harbours, prevent any significant impacts on water quality in the harbours. Any failures in the silt curtain (e.g **Figure 6-3)** will be reported to the sub-contractor and repaired as soon as possible.
- The silt curtain and temporary working area boundary will be set out to ensure that areas of *Spartina* swards are protected wherever possible and excluded from the haul route / working areas to ensure this habitat is not damaged during the works. For those swards that cannot be avoided, an alternative approach to mitigation is required and the proposal is to translocate those *Spartina* sward turfs that sit within the haul route or construction footprint to receptor locations within the redline boundary. See **Section 4.11.15** for more information.



Figure 6-2: Silt curtain in good working order



Figure 6-3 Silt curtain failure – the floating booms have sunk in places and needs to be repaired.

- Foreshore works will only be undertaken over the low tide period when the surface of intertidal sediment is above the current tidal water level (i.e. not covered with seawater), to minimise resuspension of any contaminants into the water column and to minimise impacts on foraging terns / seabirds, migratory fish and marine mammals.
- A temporary cofferdam, formed from either sheet piles or a waterproof membrane supported by bulk bags filled with local stockpiled arisings before being reinstated as described further below, may be used during the construction at Frontages 3, 4, 5, but this will be set within the 20m temporary working area boundary and must avoid the *Spartina* swards. The cofferdam would be removed on completion of the foreshore quay wall works. This provides wave action protection only to the existing sea wall during initial excavation activities and assists in maintaining the existing flood protection. Due to a mixed sediment foreshore at this location, it is not expected that a dry works area immune to tidal waters is feasible.

- Foreshore access is **not** permitted for construction of the A3023 flood wall in Frontage 3. Only access for the construction of The Ship Inn sea wall and frontages 4 and 5 are permitted in Frontage 3.
- Where access is required on the foreshore, removable temporary haul routes (e.g. matting) will be installed for tracking plant / machinery (e.g. excavator) on all substrates. This will be removed once it is no longer required.
- Temporary haul routes on the foreshore will be created so that they are removable (e.g. geotextile with sheet piles laid flat or aggregate on top) to minimise disturbance to the intertidal habitat and accelerate recovery upon reinstatement. This will be carefully removed as soon as access is no longer required.
- The intertidal habitat excavated for construction of the buried apron of the new sea walls in Frontages 3, 4 and 5 will be reinstated to the same topography as existing levels following completion of the new sea wall using material retained from the excavation and stockpiled adjacent to the working area within the silt curtain. The foreshore material will be placed back over the new sea wall apron in the reverse order to that in which it was excavated to ensure that the sediment layers are returned in the order they were prior to the works.
- A Marine Biosecurity Plan will be followed to minimise the introduction / spread of marine invasive non-native species (see **Appendix C).**
- All compound and works areas shall generally be secured from access by non-authorised persons by use of heras fencing with the exception of intertidal areas where heras fencing could form an ecological hazard and is likely to receive damage from wave and tide action. In these areas a silt curtain will be installed to the foreshore which will act as deterrent. Appropriate warning signage shall be displayed. Solid metal panel hoarding shall be used around Frontage 3/Ship Inn compound to limit the visual impact of the compound.
- A spill kit (including booms for potential leaks directly into the marine environment) will be kept on Site at all times during operation. Any fuel, oil or chemical spill or leakages must be reported to the Environment Agency, Marine Management Organisation, the Supervisor and the Project Manager immediately in accordance with an Emergency Incident Plan to be produced by the Contractor.
- There will be no discharges of any kind into watercourses (including the harbour) or sewers without the prior written consent of the appropriate authority and any requirements in respect of approved discharged will be strictly adhered to. shall comply with all their requirements in respect of discharges.

6.5 Excavation and Piling Activities

A TBT will be given to site operatives involved in excavations. All excavations will be undertaken in accordance with the Materials Management Plan and the Contaminated Land Method Statement.

A TBT will also be given to site operatives on noise and vibration control. The Piling Risk Assessment and Method Statement is to be followed. All works will be in accordance with the approved Section 61 application in relation to noise and vibration.

- A silt curtain will be in place for all excavation and pilling activities on the foreshore and kept in a good working condition.
- Excavation and piling on the foreshore will only be undertaken over the low tide period (when the surface of substrate / foreshore is above the current tide level). This will minimise sediment going into the water column and avoid the transmission of sound into the water body (that may impact foraging terns, migratory fish and marine mammals).
- Site safety fencing will be erected around any excavations, during low tides. These will be made safe before leaving site each night and weekend.
- If required, excavation work on the foreshore will be supervised by an archaeological watching brief as outlined in the Archaeological Mitigation Strategy / Heritage Statement and confirmed within the Written Scheme of Investigation.
- Installation of piles will be undertaken using vibro piling techniques as standard, with hydraulic press pilling planned for the 6m sheet piles at the west end of Frontage 3 due to length and proximity to receptors such as the Ship Inn. Percussive piling will only be used when necessary to achieve the required design depth should piles refuse early and only after confirming with the designer. If percussive piling is required, it should be undertaken ideally between August to September (to avoid impacts to breeding and overwintering birds) and a soft start procedure will be implemented for a minimum of 20 minutes to encourage any marine species to move away from the area. Should piling cease for a period greater than 10 minutes, then the soft start procedure will be repeated once piling is recommenced.
- Piling activities will be restricted to daytime hours only (07:00 to 19:00).
- Sound reducing mats shall be attached to heras fencing between the ongoing piling activities and properties

6.6 Noise and Vibration Control

Construction activities associated with the Langstone FCERM Scheme have the potential to generate temporary noise and vibration effects, particularly during piling, breaking out of existing structures, use of compaction equipment, operation of construction plant and vehicle movements. A detailed assessment of these effects has been undertaken and is set out within the project **Noise and Vibration Management Plan (NVMP)**, which should be read alongside this CEMP.

The **NVMP** identifies nearby sensitive receptors including residential properties, businesses, public rights of way, heritage assets, utility infrastructure and designated ecological sites. Particular consideration has been given to properties and listed buildings located close to piling activities within Frontages 2 to 5, together with the internationally important ecological receptors associated with Chichester and Langstone Harbours.

The Principal Contractor shall implement Best Practicable Means at all times to avoid or minimise noise and vibration impacts. Measures include selection of lower-noise and lower-vibration plant where practicable, careful programming and sequencing of works, restrictions on working hours, use of acoustic barriers and screening, management of deliveries and vehicle movements, minimisation of plant idling, and the adoption of a piling methodology hierarchy that prioritises lower-vibration installation techniques wherever feasible.

Noise and vibration monitoring will be undertaken in accordance with the NVMP during higher-risk activities, including piling and other vibration-generating operations undertaken in close proximity to sensitive receptors. Real-time vibration monitoring, agreed trigger levels, corrective action procedures and stop-work protocols will be implemented where required to ensure impacts are appropriately controlled and to safeguard nearby buildings, heritage assets and utilities.

A proactive communication strategy will be maintained throughout the works. Residents, businesses and other stakeholders will be provided with advance notice of particularly noisy activities, extended working hours, piling operations and other potentially disruptive works. Any complaints or concerns will be managed in accordance with the project complaints procedure and the requirements of the **NVMP**. Full details of mitigation measures, monitoring requirements, trigger levels, communication procedures and contingency actions are provided within the **NVMP**.

6.7 Visual Control

- Ensure the perimeter fencing is secure and the construction site remains tidy.
- Topsoil stripped from the main compound shall be placed to stockpile bunds to the north west of 21 Langstone high street and to the north east of the property to the south of the main compound site entrance track to assist with deflecting noise
- Solid metal type fencing shall be used around Frontage 3/Ship Inn compound
- Sensitively designed hoardings will be used and the Code of Considerate Practice will be followed by the contractor to reduce the visual and noise impacts to local residents and users of the local facilities.
- To limit impact on stakeholders with low level windows or low level garden walls directly onto the works, and following stakeholder engagement, a visual barrier shall be applied to the site - heras fencing or solid metal fencing shall be used to reduce the visual impact and overlooking from the works. During noisier activities such as vibration pile driving or breaking of existing asphalt, concrete and brickwork noise reducing barriers shall be installed (see the **Noise and Vibration Management Plan** for more detailed information on noise mitigation).

6.8 Lighting

The majority of construction works will be undertaken during daylight hours, however there may be occasions where works do take place in the dark. Some lighting is also required for health and safety purposes for the public car park and pedestrian access route within the main compound.

The following lighting principles will be adhered to:

6.8.1 Lighting Design

- Lighting shall be provided only where essential for health and safety and when tasks cannot be undertaken in good daylight.
- The minimum lighting level required for safe operation shall be used.

- All luminaires shall be fully shielded, downward-facing LED fittings with zero upward light spill.
- Lighting shall be directed away from adjacent vegetation, trees, hedgerows, waterbodies and the egret colony.
- No floodlighting or high-mast lighting shall be used.
- Lighting colour temperature shall not exceed 2700 K (warm white).
- Lighting columns shall be kept as low as practicable, typically a maximum of 4 m height.

6.8.2 Lighting Controls

- Lighting shall be controlled through timers, photocells and/or motion sensors where appropriate.
- Lighting shall only operate during periods of use of the temporary car park and pedestrian route.
- Any temporary security lighting shall be sensor-activated and remain off during periods of inactivity.

6.8.3 Monitoring and Review

- Following installation, a night-time inspection shall be undertaken to confirm that light spill is contained within the car park and access route and that no significant illumination of adjacent habitats or the egret colony occurs.
- Any identified light spill onto ecological receptors shall be rectified by adjustment, shielding or reduction of lighting levels.

In addition to these general lighting principles, specific lighting constraints will be put in place for foreshore works and to avoid disturbance to commuting and foraging bats, breeding birds and the nearby egret colony.

6.8.3.1 Foreshore Lighting Constraints

- Any lights used on the foreshore (within the proposed 20m working area from the toe of the new defences), will be placed so that they face landwards towards the sea wall and removed each tide prior to the tide coming into the 10m working area.
- Any lighting from land would be angled down to reduce impacts on the foreshore working area and adjacent properties.

6.8.3.2 Bat Lighting Constraints

- Existing vegetation, treelines, hedgerows and any known bat commuting corridors shall remain unlit. Light spill at the edge of retained habitats shall not exceed **1 lux**, with a target of less than **0.5 lux** where practicable.
- The pedestrian route within the main compound shall only be lit using shrouded or low level lighting such as directional bollard lighting or fully shielded low-level columns, where feasible.

- A dark buffer shall be maintained between the illuminated areas and adjacent habitat used by bats.

6.8.3.3 Breeding Bird and Egret Colony Lighting Constraints

- No direct illumination shall be allowed onto nesting habitat, reedbeds, scrub, woodland edges or the egret colony.
- Lighting shall be designed so that no light source is visible from the colony.
- Operational lighting shall be switched off when not required and shall not be used overnight unless essential.
- During the breeding season (typically March-August inclusive), lighting levels and duration shall be minimised as far as operationally practicable.
- No night working and no artificial lighting will be used between chainage 112-221 in Frontage 5 to minimise disturbance to egret and heron roost.

6.9 Materials Management

The contractor will develop and follow an approved Materials Management Plan (to guide material excavation, storage and placement) and a Contaminated Land Method Statement (to manage potentially contaminated material). Both documents will follow the following principles:

- All materials used in the Scheme will be suitable for use in the marine environment.
- Care is to be taken with the handling of excavated arisings so that they are contained and not unnecessarily released into the environment.
- A material storage area will be established alongside the main site office and set back inland away from the foreshore. This shall be the primary delivery point except for specific planned deliveries. This shall comprise segregated signed areas for bulk materials and bulk waste arisings to avoid cross mixing, yard area for palletised materials, open racked and dry container racked storage, including COSH stores and bunded fuel and oils storage. See **Figure 5-2** above for layout.
- Satellite compounds shall operate on a “just in time” for materials management. They shall have a small storage area to be used for materials relevant to the immediate ongoing works. Materials shall be moved between the main compound and satellite compound as required, with no longer required materials brought back to the main compound at regular intervals. Wastes from frontage 2 and frontage 3 compounds shall be segregated and taken back to the main compound or to the layby compound ready for disposal off site. This assists in maintaining a tidy site as well as reducing the visual and special impact of the frontage 3/Ship Inn compound
- Stock piles will be limited on site and will be covered or dampened down during periods of dry weather to reduce dust.
- Strict site management will be employed to minimise extensive damage and to monitor over-run, excavation and containment of bank profiles and soils.

- No works or storage of materials will take place outside the site boundary. Upon completion of the works, any areas not forming part of the permanent works will be reinstated to at least their pre-works condition. This includes sub-surface reinstatement where required.
- Site won material shall be re-used where possible
- Any materials to be re-used within the works will be managed in accordance with a Materials Management Plan and Contaminated Land Method Statement.
- Any materials to be imported for the works will be tested to ensure they are clean and suitable for the proposed use prior to importation and placement within the works.
- Any materials to be removed from the site will be suitably classified and taken to an appropriate off-site disposal facility or treatment site.

6.9.1 Soils

- Follow steps in the Contractor's Contaminated Land Method Statement.
- Strict site management will be employed to ensure safe handling and storage of soils.
- Soils will not be stored in heaps greater than 1.5m in height and 8m in width.
- Strict construction site management will be employed to minimise excessive damage to the grassland areas and within the open spaces to monitor over-run, excavation and compaction of topsoil adjacent to the site compound and access routes. Any drainage problems caused by over-compaction will be addressed as part of the works
- All imported subsoil and topsoil will be contaminant free. Samples will be assessed against the same criteria as used for the GI and any batch that is found to have levels of contaminants exceeding thresholds will be rejected in full.
- All new soils will be clean, contaminant-free, and all mounded/banked areas of new soil will soon be softened by establishing vegetation allowing the works to blend in with the existing landscape and provide greater diversity to the existing environment.
- Provide drainage improvements where any problems arise, using hardcore/soils to suit where needed.
- Site access will be reviewed regularly and the protection of vulnerable soils by temporary overlay surfaces will be implemented where necessary.

6.9.2 Concrete

- Concrete shuttering shall be designed to prevent escape of cementitious material into watercourses. Designed concrete suitable for salt water inundation after 90 minutes shall be used, preventing damage to the concrete and release of contaminants
- Concrete washout will be in suitably lined skips in the main compound. These will be at least 10m away from the nearest watercourse / surface water drain.
- Ensure coatings and treatments are suitable for the marine environment and used in accordance with environmental best practice.

6.9.3 Other Materials

- Any materials to be imported for the works will be tested to ensure they are clean and suitable for the proposed use prior to importation and placement within the works.
- Timber used for temporary and permanent works shall be from a temperate, sustainable source.

6.10 General Pollution Control

- A supply of water and means of dispensing it, typically a dust suppression water bowser pulled by dumper, will be available on site to dampen down dust, haul routes and material stockpiles. Metalled areas shall be kept dust and debris free by use of a road sweeper with water dust suppression. RAMS and toolbox talks shall be briefed to instruct best practices. Dust shall be monitored by an experienced site foreman who shall direct the placement and quantity of water suppression. Drying hardcore surface which is starting to break up, any dust seen omitted from the compound due to wind or traffic shall result in damping down commencing.
- Excavation works within Frontage 3, 4 or 5 tidal areas are not expected to require damping down due to the tidal wetting action
- Cutting activities, asphalt, concrete, brick etc, in all areas shall require water dust suppression
- Topsoil striping and placement is programmed for times of year when soils should have retained moisture – activities are to be monitored and water placed as dust suppression as required
- Excavation of sub soils is expected to have sufficient retained moisture to prevent dust emission, damp down as required
- Placing of 1A and Type 1 MOT shall be damped down if required due to dust emission and to achieve required compaction
- Wheel wash facilities will be situated at the access egress points of the compounds to mitigate nuisance dust/dirt/debris being driven onto the highways. A road sweeper will be available on call off to damp down and sweep up.
- Regular inspections will be carried out by an experienced foreman to monitor dust levels throughout site and the effectiveness of any suppression in use, adjusting the frequency and quantity of water suppression as required
- All vehicles carrying loose or potentially dusty material to or from the site are to be fully sheeted (wagons) and/or damped down (dumpers).
- Drop heights of materials will be minimised to reduce dust and material separation, as well as noise.
- Biodegradable hydraulic fluid and lubricants shall be used.
- Equipment shall be maintained by trained persons to ensure efficiency and to minimise emissions

- Equipment shall be cleaned before delivery to the site. Adopt the GB's non-native species secretariat (NNSS) Check Clean Dry protocol which can be found here: https://www.nonnativespecies.org/what-can-i-do/check-clean-dry#
- A spill kit (including booms for potential leaks directly into the marine environment) will be kept on site at all times during operation. Any fuel, oil or chemical spill or leakages will be reported to the Environment Agency, Marine Management Organisation, the Supervisor and the Project Manager immediately in accordance with an Emergency Incident Plan produced by the Contractor.
- All plant is specified to be fuelled with bio-diesel, where possible.
- Timber preservative treatment shall be carried out away from watercourses and in a manner to avoid any spillage or loss.
- Vehicle speed will be limited on site to a maximum of 10 mph within works sites and satellite compounds, or 15mph within the main compound.
- No idling vehicles; all engines to be switched off.

6.11 Land-based Contamination

- Works to be undertaken as guided by the Contaminated Land Method Statement and the Materials Management Plan (see also **Section 6**).
- Where excavation is required, excavated material confirmed to be present with contaminants in concentrations greater than permitted within the Contaminated Land Method Statement will be disposed of at fully licensed land-based sites and not reused in the construction of the new defences.
- If any land-based contaminants are excavated, it will be stored on land and kept separate from areas that would drain into the harbours. Excavated materials not for reuse at the producing location shall be taken by road going dumpers to the main compound to be stockpiled and segregated as per waste stream for correct offsite disposal
- All excavations during the construction works will be undertaken in accordance with the CEMP and Contaminated Land Method Statement.
- Any materials to be re-used within the works will be managed in accordance with an approved Materials Management Plan the Contaminated Land Method Statement.
- Any materials to be imported for the works will be tested to ensure they are clean and suitable for the proposed use prior to importation and placement within the works.
- Any materials to be removed from the site will be suitably classified and taken to an appropriate off-site disposal facility or treatment site in line with the SWMP and waste transfer note or consignment note as required. All disposals purchase orders shall be arranged via the contractor's head office purchasing team to ensure all company procedures, regulations and industry best practices are adhered to.

6.12 Waste

A TBT will be given to site operatives on waste management control and the Site Waste Management Plan is to be followed and regularly updated. RAMS for specific tasks shall detail how waste should be handled and where it should be stockpiled prior to disposal off site.

- All disposals purchase orders shall be arranged via the contractor's head office purchasing team to ensure all company procedures, regulations and industry best practices are adhered to.
- All works to be undertaken in accordance with the Site Waste Management Plan using the waste hierarchy to minimise waste to landfill.
- Waste to be stored in designated areas that are isolated from surface water drains and open water and any other sensitive receptors. Wastes shall be taken to the main compound as produced (soil and stones etc) or at the end of each shift (small items)
- Hazardous waste will be stored separately from inert and non-hazardous waste. Any differing hazardous waste will not be mixed.
- All waste containers will be signed to show the accepted waste stream.
- All skips used for the storage of waste shall be kept covered as far as is reasonable.
- Waste will be segregated for ease for off-site recycling.
- Site material will be re-used where possible.
- Waste and/or debris associated with the works will be removed within 6 weeks of each sectional completion of the works.
- All waste to be accompanied by completed Waste Transfer Notes.
- All waste transfer notes / hazardous waste consignment notes are to be checked before signatures applied to ensure all required information is recorded before the waste is removed.
- Carrier licences will be obtained and checked for all companies who remove waste from site.
- Full environmental permits, exemptions or other evidence will be obtained and checked to ensure that disposal locations can accept the waste type to be sent there, and in the quantity required.
- Where possible, excavated natural material will be used in accordance with CL:AIRE The Definition of Waste: Development Industry Code of Practice. This will ensure that these materials do not get classified as waste and are used in a sustainable manner.

6.13 Ecology (Species Mitigation and Precautions Required)

6.13.1 Notable Plant Species and Priority habitats

- The vegetated shingle habitat within Frontage 2 will be avoided and will not be impacted during construction works as the new sheet pile wall will be installed working from the landward side.
- Translocate the Golden Samphire plants from the old revetment at Frontage 3 to areas with suitable conditions and/or create areas with suitable conditions for assisted colonisation.
- Areas of vegetation that will not be removed but contain notable species (e.g. Golden Samphire in Frontage 2) should be mapped, demarcated and protected throughout the works to avoid any harm.
- Any wet woodland understorey habitat removed will be replaced with a native wetland mix of shrubs as outlined in the landscaping plans and planting schedule.

- 27m of species rich hedgerow will be planted in same location to replace the hedgerow removed during vegetation clearance and additional areas will be planted with a hedgerow seed mix as outlined in the landscaping plans and planting schedule.

6.13.2 Bats

All bat species and bat roosts are legally protected in the UK under Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended). This legislation makes it an offence to:

- *Deliberately kill, injure or capture bats;*
- *Deliberately disturb bats in such a way as to be likely to significantly affect i) the ability of any significant group of bats to survive, breed or rear or nurture their young, or ii) the local distribution or abundance of bats;*
- *Intentionally or recklessly disturb any bat whilst it is occupying a roost;*
- *Damage or destroy bat roosts;*
- *Intentionally or recklessly obstruct access to a bat roost.*

- Any trees to be felled or pruned will be assessed from the ground level for the potential bat roost features, as even unoccupied bat roosts are protected by law. Emergence/re-entry surveys will be conducted at a suitable time of year on any additional tree due to be felled or pruned where medium/high/confirmed potential bat roosting features are identified.
- Where possible all work on trees will be carried out in Spring (mid-March to end of April) before young are born, or Autumn (September to late October) after the young are weaned and independent before hibernation. However, these times are climate dependent and can vary from year to year.
- Soft felling will be used as a precautionary method to remove trees / branches, including the five identified trees with negligible potential roosting features located around the proposed access junction between Langstone Road and the compound entrance. Soft felling requires the trees to be cut down in sections, with each section carefully lowered to the ground. Once lowered, the sections must be left in situ for 24 hours, to give any temporary roosting bats time to move away to another roost site.
- To minimise risk of affecting foraging bats, avoid night working using artificial lighting. If essential, lights should be constrained as set out in **Section 6.7**.
- Bat boxes will be installed as outlined in the landscape plans.

6.13.3 Breeding Birds

Under the Wildlife and Countryside Act, it is an offence to destroy or damage the nest of birds of any species.

- An appropriate ornithological watching brief by a suitably qualified and experienced ecologist will be undertaken to assess any impacts to nesting Little Egret (*Egretta garzetta*), Cattle Egret (*Bubulcus ibis*), Grey Heron (*Ardea cinerea*) and Cettis warbler (*Cettia cetti*) at Langstone Millpond during the nesting period (March to August inclusive). Significant disturbance will be determined by expert opinion and, if required, consultation with relevant bodies, but could be reached by unacceptable daily effects or cumulatively, e.g. a pattern of effect amounting to an adverse impact. Appropriate management

measures will be put in place immediately to address it. Such measures could range from the installation of acoustic barriers, implementation of timing restrictions to cessation of construction activities if other measures are not sufficient to avoid significant disturbance on nesting birds in this colony. These would be implemented, until nesting attempts have been completed. See Ornithological Watching Brief in **Appendix D**.

- To minimise risk of disturbance to the egret and heron roost, no night working, and particularly no artificial lighting, should be used between CH112-221.
- Lighting controls will be put in place as set in **Section 6.7**.
- All vegetation clearance in Frontage 5 should be undertaken outside of the bird nesting season (March-August inclusive) to avoid disturbance of the egret/heron nesting colony.
- No site personnel to enter the woodland area around the egret/heron nesting colony during the bird breeding season March-August inclusive.
- All suitable bird nesting habitat within working areas to be cleared outside of the bird nesting period (no bird nesting habitat to be cleared between March to August inclusive). If this is not possible all potential habitat to be checked by a suitably experienced and qualified ecologist prior to commencement. If nests are found, work in that area will stop, and a 5m buffer will be placed around the nest. Work can only continue when the nest becomes unoccupied of its own accord.
- A range of nest boxes suitable for species present will be erected in adjacent habitats prior to commencement of site clearance.

6.13.4 SPA Breeding Seabirds

- A silt curtain will be installed and kept in a good working condition throughout the whole duration of the foreshore construction works. This will prevent any suspended sediments migrating into the wider adjoining harbours. Any failures in the silt curtain will be reported to the sub-contractor and repaired as soon as possible.
- Works on the foreshore will be undertaken over the low tide period to minimise resuspension of any contaminants into the water column.
- Lighting controls will be put in place as set in **Section 6.7**.

6.13.5 Non-breeding SPA Birds / Overwintering Birds

- The following seasonal timing restrictions will be incorporated for sensitive overwintering bird locations:
  - In Frontage 1A, a wacker plate or compacting plant with a similar noise profile will not be used between CH120-188 during the overwintering bird period October to March inclusive.
  - In Frontage 2, no construction work to be undertaken during the overwintering bird period October-March inclusive.
  - In Frontage 3, no construction work to be undertaken during the overwintering bird period October-March inclusive.
  - In Frontage 4, no construction work to be undertaken during the overwintering bird period October-March inclusive.

  - In Frontage 5, no construction work to be undertaken on the harbourside stretch of this frontage (CH0-110) or piling / trench sheet installation work between CH110-185 during the overwintering bird period October to March inclusive.

- For any work proposed within the over-wintering bird period (October- March inclusive), an appropriate ornithological watching brief by a suitably qualified and experienced ecologist will be undertaken to assess any impacts. Significant disturbance will be determined by expert opinion and, if required, consultation with relevant bodies, but could be reached by unacceptable daily effects or cumulatively, e.g. a pattern of effect amounting to an adverse impact. Appropriate management measures will be put in place immediately to address it. Such measures could range from the installation of acoustic barriers, implementation of timing restrictions to cessation of construction activities, if other measures are not sufficient to avoid significant disturbance to the over-wintering birds. No construction works are proposed to be undertaken within the overwintering period but some vegetation clearance is proposed on Frontage 2 in January 2027. An ornithological watching brief for this activity has therefore been included in **Appendix D**. If any further activities occur between that could have impact on overwintering birds, additional watching briefs will be submitted to the LPA and Natural England for approval prior to their commencement.
- Construction work should not be carried out during periods of severe weather (e.g. frozen ground conditions), which is defined as temperatures of 0°C or below recorded locally (Gosport, Fleetlands, Thorney Island; forecasts for both can be viewed via BBC weather or the Met Office weather app) for five consecutive days. Therefore, the construction works should be suspended for the duration of the severe weather. With respect to the process of counting days of severe weather, short periods of thaw (1-2 days) have no effect on the counting process, but periods of thaw of three or more days have the effect of resetting the count of severe weather days back to zero.
- Lighting controls will be put in place as set in **Section 6.7**.

6.13.6 West European Hedgehog

West European hedgehogs are listed under the NERC Act 2006.

- Any dense vegetation clearance (e.g. hedgerows / along the Hayling Billy trail) should initially be checked for hedgehogs prior to removal.
- Any piles of leaf litter and similar material should initially be cleared by hand, to avoid harm to sleeping or hibernating hedgehogs.
- No excavations should be left open overnight, they should be covered and / or provide a means of escape (e.g. scaffold plank laid at 45 degrees).

6.13.7 Badger and Common Toad

Badgers and their setts are legally protected under the Protection of Badgers Act 1992 in England and Wales. Common toads are listed under the NERC Act 2006.

- No excavations should be left open overnight, they should be covered and / or provide a means of escape (e.g. scaffold plank laid at 45 degrees).

6.13.8 Reptiles

It is illegal to intentionally or recklessly kill or injure a common reptile.

The Reptile Mitigation Strategy (**Appendix B**) sets out the principles and methods of a 'vegetation management, hand capture and reptile relocation programme', prior to the construction works. This Reptile Mitigation Strategy was strictly followed during August/September 2026 when undertaking the in-situ reptile translocation and vegetation clearance within the site boundary. Close-cropped strips will be maintained until the contractor has control of the construction site, when reptile fencing will then be installed. **Figure 6-4** shows the close cropped vegetation within Frontage 2. This will prevent recolonisation of de-risked areas from the adjacent suitable habitat that will act as reptile safe areas throughout the works (See **Figure 6-5)**. These receptor sites will not be impacted by the construction works.



Figure 6-4 Photo of Frontage 2 (Oct 2026) showing close cropped vegetation



Figure 6-5 Langstone FCERM Scheme Reptile Mitigation Areas (scheme boundary indicative)

The hand capture and translocation programme found no reptiles within Frontage 5. Within Frontage 2, 5no. slow worms were found and successfully translocated.

6.13.9 Invertebrates: Stag Beetle

The stag beetle is a Habitats Directive Annex II listed species.

- The area to be cleared in Frontage 1A and 2 should be checked for any stag beetle larvae and / or adults by a suitably qualified and experienced ecologist. Any stag beetles or larvae found should be carefully translocated to a suitable natural or purpose-built habitat close by.
- Create areas with loggeries / log piles / log pyramid features within the landscaping plans along the Hayling Billy trail footpath in Frontages 1A and 2, to encourage female stag beetles to lay their eggs within / near the rotting wood features.

6.13.10 Marine Mammals (Harbour and Grey Seals)

The harbour and grey seal are both listed on Annex V of the European Habitats Directive 2017.

- See **Section 6.4** for mitigation measures regarding excavation and piling on harbour and grey seals.
- A silt curtain will be used to prevent suspended sediments entering the wider area during construction (see **Section 6.3**).

6.13.11 Migratory Fish

- See **Section 6.4** for mitigation measures regarding excavation and piling works on migratory fish.
- A silt curtain will be used to prevent suspended sediments entering the wider area during construction (see **Section 6.3**).

6.13.12 Marine Invasive Non-native Species

- A Marine Biosecurity Plan will be followed to minimise the introduction / spread of marine invasive non-native species (see **Appendix C).**

6.13.13 Schedule 9 Plants: Japanese Rose and Three-cornered Garlic

Two plants listed under Schedule 9 part 2 of the Wildlife and Countryside Act 1981 (as amended), are present within the Scheme boundary located close to the Billy Trail footpath. Japanese Rose is present within Frontage 2 and Three-cornered Garlic is present within Frontages 1A and 2. It is illegal to plant or cause a Schedule 9 invasive non-native plant species to grow.

- A pre-commencement survey will be undertaken and a 7m buffer zone will be marked around any Japanese Rose and/or Three-cornered Garlic plants found.
- A Schedule 9 Plant Management Plan will be implemented and adhered to for plants/material retained on site, or appropriately disposed of on site.
- All material within the 7m buffer zones removed from site will be clearly identified to the waste carriers as potentially containing Japanese Rose and/or Three-cornered Garlic and taken to a suitably licensed disposal site.

- Ensure that imported materials are free from Japanese Rose, Three-cornered Garlic and other invasive species where possible.

6.13.14 Trees

All works will be undertaken in accordance with the Arboricultural Method Statement.

- All of the recommended tree works should be undertaken by an approved and experienced tree contractor as outlined in the Arboricultural Method Statement prior to any construction contractors commencing works on site.
- Erect the protective fencing as specified and shown on the Tree Protection Plan BJH03/04 at appendix BH3 in the Arboricultural Method Statement. Barriers are to be 'Fit for Purpose' to exclude construction activity and must be maintained to ensure that they remain rigid and complete and in the original setting out positions. These checks will need to be incorporated into a schedule of site monitoring visits to be agreed with the contractor subject to phased development operations and subsequently copies of these site visit reports will need to be copied to the LPA.
- A copy of the Tree Protection Plan is to be pinned up in the offices on site for all site staff to see. The area within the fenced off construction exclusion zone is to be regarded as sacrosanct and the fencing shall not be taken down or relocated at any time without the prior written approval of the monitoring arboriculturist or local authority tree officer, unless this has already been agreed as part of the planning application consent process and is detailed in writing and shown on a plan.
- The following prohibitions shall apply within the area enclosed by the Tree Protection Fencing [Construction Exclusion Zone]:
    - No mechanical digging or scraping once the initial ground cover vegetation has been cleared and the site fenced off.
    - No storage of plant, equipment or materials
    - No vehicular or plant access
    - No fire lighting
    - No handling, discharge or spillage of any chemical substance, including cement washings
    - No action likely to cause localised water-logging
    - No change in ground levels
- All site works storage areas and compounds/welfare units/toilet blocks and any mixing areas are to be located outside of and well clear of retained tree RPA's.
- All Utility Service connections are to be located outside of tree RPA's.

Arboricultural Expert Monitored 'Hand Digging' works [for works within tree Root Protection Zones (RPZ)'s]:

- Break out hard surfacing with appropriate drills and hand held tools stopping as soon as bare earth is reached - which may include the use of a mini digger with a pneumatic 'pecker' attachment or for large plant working entirely from the foreshore and outside of tree RPZ's.

- Clear away the debris and arisings from the work face.
- An Arboricultural Expert is to be called in to monitor the ‘Hand Digging’ works with forks [or air spades or similar acceptable low impact technology] ONLY initially and shovels and spades at a later date at the discretion and direction of the Arboricultural Expert.
- If roots are encountered then they are to be carefully worked around and if they are 25mm or less in diameter and not found ‘en masse’ then the Arboricultural Expert will sever them at the trench edge with clean and sharp bypass secateurs to allow works to continue. In the event that the roots are over 25mm in diameter then the priority must be to retain them and find a ‘work around‘ solution (e.g. packing around them with sharp washed sand and then wrapping in hessian to protect them).

Ground Protection Measures:

- Whilst there is no anticipated specific need for these works it may be found that to access an area to work on it (i.e. the Mill Lane footpath link) then ground protection must be laid to give access to hand operated machinery as per BS5837:2012 Section 6.2.3.3 Recommendations.
- The Tree Protection Plan will be monitored as outlined in the Arboricultural Method Statement.

Tree Removals:

Where specific trees are shown for removal to facilitate the layout of the Scheme (on the Tree Protection Plans detailed below, they are to be cut down in a controlled manner to avoid damage to other trees and their surroundings. The stumps are to be ground out by machine except where they are shown to be coppiced and these will be cut down to ground level and allowed to re-shoot and contribute to the general shrubbery and low canopy cover in the future (as detailed in the Arboricultural Method Statement).

- LANG-ACM-TPP-F1A_DR_ZZ_011030
- LANG-ACM-TPP-F2_DR_ZZ_011031
- LANG-ACM-TPP-F3_DR_ZZ_011032
- LANG-ACM-TPP-F4_DR_ZZ_011033
- LANG-ACM-TPP-F5_DR_ZZ_011034
- LANG-ACM-TPP-F5_DR_ZZ_011035
- LANG-ACM-TPP-F5_DR_ZZ_011036
- LANG-ACM-TPP-F5_DR_ZZ_011037
- LANG-ACM-TPP-F5_DR_ZZ_011038

All of the recommended tree works should be undertaken by an approved and experienced tree contractor prior to any construction contractors commencing works on site.

Any trees and scrub removed will be replaced with an equal or greater number of appropriate species, sizes and quality.

6.13.15 Saltmarsh

The original planning and marine licence applications assessed the impact on the existing Spartina swards present within the intertidal area. Two main areas of *Spartina anglica* were identified within the intertidal working area and the proposed mitigation was to fence these areas off during construction, with the foreshore haul route being made narrower in these location in order to protect the saltmarsh.

Since those original submissions, the *Spartina* extent has expanded, both in terms of height and spatial distribution and there are areas that now cannot be avoided (see **Figure 6-6**). An alternative approach to mitigation is therefore required and the proposal is to translocate those *Spartina* sward turfs that sit within the haul route or construction footprint to receptor locations within the redline boundary, An adaptive management approach will then be implemented once the translocated turfs are in place, to monitor their condition and review if any further intervention is required (see point 6 in proposed protocol below)..



Figure 6-6 Spartina anglica on foreshore September 2026

Figure 6-7 shows the recently surveyed distribution of *Spartina anglica* and how it relates to the haul route and footprint of the works.

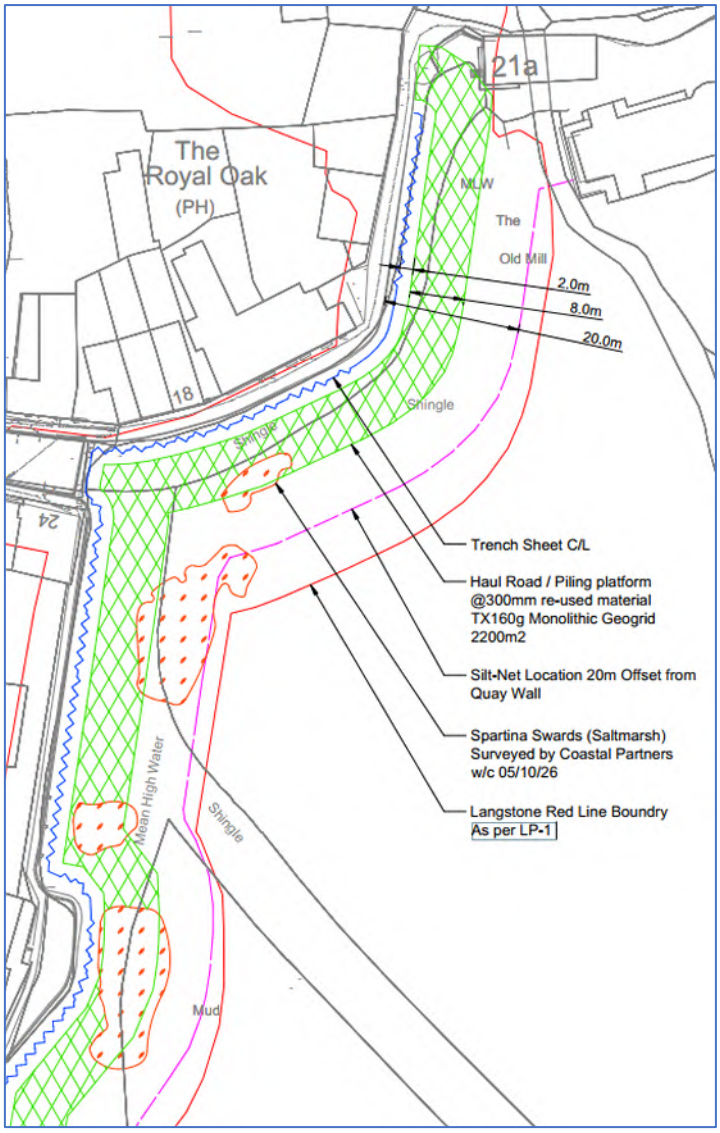

Figure 6-7 Plan showing current Spartina anglica distribution

The following process will be followed:

Identification of Saltmarsh

- Any saltmarsh vegetation identified within the haul road footprint, plus an appropriate buffer zone (anticipated to be approximately 2 metres), that is present in October 2026 and also any new saltmarsh present in April 2027 shall be translocated prior to the commencement of construction activities.

Selection of Receptor Locations

- A suitable receptor location for the translocated saltmarsh shall be identified by Coastal Partners' Environment Team.
- The receptor location shall be of suitable substrate and located at the same, or as close as reasonably practicable to the same, tidal elevation as the donor location to maximise the likelihood of successful establishment.

Timing of Translocation

- Saltmarsh vegetation shall be translocated immediately following excavation and within the same tidal cycle to minimise stress and desiccation of the plant material.

Method of Removal and Translocation

- Saltmarsh shall be removed and replanted in the largest practicable turfs, using a method similar to turfing.
- Each turf shall include the full root structure and associated sediment to maintain plant viability and minimise disturbance.

Stabilisation Measures

- Provision shall be made to secure the translocated turfs to the foreshore where necessary.
- Appropriate staking or anchoring methods shall be used to prevent the transplanted material from becoming dislodged or floating away before rooting and stabilising.
- The requirement for staking will depend on the size and stability of the transplanted turfs and site and weather conditions.

Monitoring

- The translocated saltmarsh turfs will be subject to a programme of monitoring throughout the construction period and for a minimum of 12 months following completion of the scheme to assess habitat establishment, vegetation condition and overall ecological performance.
- During construction, weekly environmental inspections will be undertaken by the Environmental Lead to evaluate the condition of the translocated saltmarsh areas. Monitoring will assess indicators such as vegetation vigour, plant survival, evidence of erosion or scour, sediment stability, and the integrity of fixation measures. Where adverse trends are identified, appropriate corrective actions will be implemented, which may include adjustment of staking arrangements, repositioning of turfs within more suitable elevations, or other measures to improve establishment success.
- Following completion of the scheme, the translocated areas will continue to be monitored to evaluate successful establishment and integration with surrounding saltmarsh habitat. Any areas demonstrating poor establishment, reduced vegetation cover, or failure to achieve the intended ecological function will be subject to remedial planting using appropriate saltmarsh species of local provenance.
- Should any translocated areas experience significant dieback or fail to establish within the first year following completion, replacement planting and/or other habitat enhancement measures will be undertaken to secure the long-term success of the mitigation measure.

Restoration of Donor Areas

- Following removal of the haul road, conditions suitable for future saltmarsh development shall be restored in the donor area.
- Restoration measures shall include:
  - Decompaction of the foreshore sediments.
  - Reinstatement of a stable foreshore profile (see sections **4.13** and **4.14** of this CEMP).
  - Ensuring the availability of suitable fine-grained sediment to support saltmarsh colonisation and growth.

The careful reinstatement of the foreshore area will help create conditions that allow natural recovery and expansion of saltmarsh habitat within the affected area.

6.14 Archaeology and Heritage

Works to be undertaken in accordance with the **Heritage Statement** and **Archaeological Mitigation Strategy (AMS)**.

- An Archaeological Mitigation Strategy has been produced, which sets out an appropriate approach to be adopted during construction.
- Site induction and specific tool box talks will highlight the potential for buried archaeology and the correct response procedure should any items be uncovered during works.
- The construction works will have a retained archaeologist present that will brief the construction team at commencement of works and undertake a watching brief in some capacity during certain stages of construction, if required.
- Construction site management will ensure care is taken to not disturb the ground deeper than is required for surface clearance.
- In the event of archaeological material being discovered, works will stop immediately in that area until the County Archaeologist and Historic England have approved works to continue. Any finds will be recorded and managed in accordance with the Archaeological Mitigation Strategy.
- Sensitively designed hoardings will be used within the Conservation Area and near Grade II Listed Buildings and the Contractors will be required to follow the Code of Considerate Practice during the works.

6.15 Planting and Landscaping Works

Once works are complete, vegetation will be replanted with native, hardy and quick growing species suited to the environment, where possible. Replanting will be undertaken as advised by the Landscape Plans and Planting Schedule, which have been determined in consideration of biodiversity net gain requirements, and shall be carried out no later than the first planting and seeding season following the completion of the development.

Any trees or plants which, within a period of 5 years from the date of planting die, are removed or become seriously damaged or diseased shall be replaced in the next planting season with others of similar size and species.

6.16 Reinstatement of Site

Upon completion of the works, all temporary construction features, compounds, accesses, haul routes, storage areas, welfare facilities, fencing, signage and other temporary infrastructure not required as part of the permanent scheme shall be removed. All areas temporarily affected by construction activities shall be reinstated to a condition that is as close as reasonably practicable to their pre-construction condition, unless replacement infrastructure forms part of the approved permanent works. Reinstatement shall be undertaken in accordance with the approved drawings, Landscape Plans, ecological mitigation measures and any relevant landowner agreements.

Prior to occupation of each compound, haul route, working area or temporary access, a pre-condition survey will be undertaken and photographic records retained. Following completion of the works, all temporary construction features not forming part of the permanent scheme shall be removed and the affected land reinstated to a condition that is as close as reasonably practicable to its pre-construction condition. Reinstatement works shall be informed by the recorded pre-construction condition and completed in consultation with relevant landowners, stakeholders and regulatory bodies where appropriate.

6.16.1 Foreshore

- The foreshore shall be reinstated upon completion under the direction and supervision of a Coastal Partners ecologist. The Contractor shall reinstate the intertidal habitat excavated for construction of the buried apron of the new sea walls in Frontages 3, 4 and 5, to the same/as close to the same gradients and topography as existing levels/gradient following completion of the new sea wall.
- The foreshore material will be placed back over the new sea wall apron in the reverse order to that in which it was excavated to ensure that the sediment layers are returned in the order they were prior to the works.
- Temporary haul routes, geotextiles, geogrids, protection measures, access matting, cofferdams and any other associated temporary works shall be removed once no longer required.
- No foreshore material shall be removed from site without prior approval of the relevant authority.
- The foreshore within the site boundary shall be cleared of all debris greater than 150mm in size on completion of the works.
- The silt curtain shall be removed at least two weeks after foreshore reinstatement.

6.16.2 Compounds and Haul Roads

- Temporary compounds, storage areas, welfare facilities, hardstandings, drainage features, geotextiles, stone haul roads and temporary access tracks shall be removed unless otherwise required as part of the permanent works.

- Areas affected by construction traffic or temporary site infrastructure shall be decompacted using suitable methods to restore soil structure, infiltration capacity and drainage characteristics.
- Disturbed grassland areas shall be reinstated using appropriate reseeding of turfing as set out within the Landscape Plans and Planting Schedule.
- Reinstated areas shall be monitored during the maintenance period and any failures, settlement, erosion or poor establishment shall be remedied.

6.16.3 Public Rights of Way, Footpaths and Cycle Routes

- Temporary footpath closures, cycle route diversions and public rights of way restrictions shall be removed as soon as they are no longer required.
- Footpaths, cycleways and public rights of way affected by construction activities shall be reinstated to at least their pre-construction condition unless replacement infrastructure forms part of the approved permanent scheme.
- Any damage arising from construction traffic, plant movements or temporary traffic management measures shall be repaired before the routes are reopened.
- Temporary signage, barriers, fencing, temporary lighting and diversion infrastructure shall be removed following completion of the works.
- Final inspections shall be undertaken prior to reopening routes to confirm they are safe and suitable for public use.

6.16.4 Highways and Street Furniture

- Reinstatement of highway areas affected by the works shall be undertaken in accordance with the requirements of the Highway Authority and any relevant Section 278 Agreements.
- Any highway surfaces, kerbs, verges, road markings, signs or associated infrastructure damaged by the works shall be repaired or replaced to the satisfaction of the Highway Authority.
- Street furniture temporarily removed during the works, including benches, signs, bollards, railings and other features, shall be reinstated in accordance with the approved drawings and Landscape Plans unless otherwise agreed

6.16.5 Habitats and Landscaping

- All temporarily disturbed terrestrial habitats shall be reinstated in accordance with the Landscape Plans, Planting Schedule, Biodiversity Net Gain Statement and associated mitigation habitat creation strategies.
- Replacement planting, habitat creation and ecological enhancement measures shall be undertaken at the earliest appropriate planting season following completion of construction.
- Any failed planting shall be replaced in accordance with the approved maintenance and replacement requirements.

- Saltmarsh, foreshore and other ecological mitigation measures shall continue to be monitored in accordance with the requirements of this CEMP and associated ecological management commitments.
- Habitat reinstatement areas shall be inspected by the Environmental Lead to confirm successful establishment and identify any remedial actions required.

6.16.6 Inspection and Verification

- Reinstatement works shall be inspected by the Contractor and Coastal Partners Environmental Lead following completion.
- Any defects identified during inspections shall be recorded and rectified within an agreed timescale.
- Where relevant, reinstated areas shall be inspected with the landowner, Highway Authority or other responsible party before formal handover.
- Records of inspections, photographs and any corrective actions shall be retained within the project records.
- The successful completion of reinstatement works shall form part of the project demobilisation and close-out process.

7 Management of Flood Risk during Construction

Existing flood defence levels and watercourses within the site working area will be maintained and monitored to ensure no increased risk of flooding during construction activities. Forecasts shall be consulted during the planning of upcoming and ongoing works to ensure that flood risk is not increased, and any cessation or mitigation measures can be proactively considered and implemented.

The Contractor will retain the integratory of the coastal defence and manage flood risk during construction. The scheme typically does not require the removal of existing flood defence and instead works alongside existing flood protection measures.

The Contractor has planned the intrusive works to align with the ecological constraints, resulting in the works being undertaken during favourable times of year to avoid sea borne flood events. The contractor has reviewed design buildability which does not require the removal or reduction of existing flood defence structures. The contractor shall implement temporary works to ensure the integrity of the existing flood defence structures. E.g. bulk bag wall behind the silt curtain to limit wave action and reduce water inundation duration. Temporary works shall also be designed and installed to support the existing sea wall during construction of the sea wall foundations.

Appendix A1 –Detailed Method Statements

Jackson	METHOD STATEMENT	No:	S0050/MS/001
		Page:	1 of 31
CONSENTS DISCHARGE METHOD STATEMENT		Issue:	A
		Date:	31/07/2026

Contract:	**Langstone Coastal Scheme**	
Issue details:	A	
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Contents

1 Main Activity/Area of Work 3
1.1 Project Background 3
1.2 Description of Works 3
Frontage 1A: Billy Line North 4
Frontage 2: Billy Line South 4
Frontage 3: A3023 Road to 9 Coastguard Cottages (the Look Out) 4
Frontage 4: The Look Out to No 24. Langstone High Street (the Winklemarket) 5
Frontage 5 Langstone High Street to the field north of Royal Oak 5
2 Drawing/Specification References 6
2.1 Scope 6
2.2 Drawings 6
3 Special Considerations 6
4 Hazard/Risk Assessments 6
5 Personal Protective Equipment/Safety Equipment/Special Precautions 10
6 Barriers/Fences/Warning Signs 10
7 Constraints/Restrictions/Permits 11
7.1 Operatives & Staff 11
7.2 Permits 11
7.3 Stakeholders 11
8 Environmental Aspects 12
9 Plant and Equipment 12
9.1 Vegetation clearance 12

9.2 Topsoil strip compound and frontages and placing of aggregate to form main compound 12
9.3 Establish site office facilities 13
9.4 Site compound junction 13
9.5 Establish satellite compound facilities and Frontage boundary 13
9.6 Beach frontage haul routes 14
9.7 Piling works 14
9.8 Concrete works 14
9.9 Earthworks 14
10 Materials (handling/storage/disposal) 15
11 Labour and Supervision 15
12 Preparation of Works/Location of Services 15
13 Emergency Procedures 16
14 Method of construction 17
14.1 Vegetation clearance 17
14.2 Topsoil strip compound and frontages and placing of aggregate to main compound 19
14.3 Establish site office facilities 20
14.4 Site compound junction 20
14.5 Establish satellite compound facilities and Frontage boundary 21
14.6 Beach frontage haul routes 21
14.7 Piling works 23
14.8 Foreshore Concrete Works 26
14.8.1 Reinforced Concrete Bases 26
14.8.2 Concrete walls and walking platforms 28
14.9 Earthworks 29

1 Main Activity/Area of Work

1.1 Project Background

The Client, Havant Borough Council, as a flood and coastal erosion Risk Management Authority (RMA), has a responsibility towards developing, applying, maintaining and monitoring strategies for local flood risk management in the Havant area, which includes the village of Langstone.

The Langstone Flood and Coastal Erosion Risk Management (FCERM) Scheme will introduce new or upgraded defences to provide improved protection against tidal flooding in the village of Langstone.

The detailed design solution for the Langstone FCERM scheme has been produced by AECOM (2024). The scheme involves 1km of new, continuous defences which consist of earth raising, flood embankments, reinforced concrete flood walls, sheet-piled walls, flood glass barriers and demountable defences. The flood defences have been designed with a 50-year design life and to provide a present day, 1:200-year (0.5% Annual Exceedance Probability (AEP)) standard of protection against tidal still water level. The scheme reduces flood risk to 67 residences, 4 commercial properties, the A3023 and various infrastructure assets in the village of Langstone.

1.2 Description of Works

The works are to implement the Langstone FCERM Scheme.

The 1km long Langstone FCERM Scheme frontage is located south of Havant and north of Hayling Island, in the Borough of Havant. The scheme frontage extends from Mill Lane in the west, to the A3023, north to the Royal Oak Pub and then to the meadows of North Langstone High Street.

The works generally comprise:

- General site clearance
- Breakout of existing structures
- Utility diversions
- Highways works
- Construction of new flood defences
- Drainage
- Footpath works
- Landscaping

The Langstone FCERM scheme is split into five frontages to reflect the varied character and constraints along its length with the locations shown in LANG-ACM-ZZ-ZZ-DR-ZZ-011000. The description shall be read in conjunction with the design drawings, and it should be noted that the design drawings take precedence over the description provided below.

For construction, the works are to be sectioned as follows:

- Frontage 1A – Billy Line North (LANG-ACM-ZZ-F1A-DR-ZZ-011101)

- Frontage 2 – Billy Line South (LANG-ACM-ZZ-F2-DR-ZZ-011201)
- Frontage 3 – A3023 Road to 9 Coastguard Cottages (the Look Out) (LANG-ACM-ZZ-F3-DR-ZZ-011301)
- Frontage 4 – The Look Out to No 24. Langstone High Street (the Winklemarket) (LANG-ACM-ZZ-F4-DR-ZZ-011401)
- Frontage 5 – Langstone High Street to the field north of Royal Oak (LANG-ACM-ZZ-F5-DR-ZZ-011501)

Frontage 1A: Billy Line North

The flood defence comprises a raised flood embankment and follows the line of the existing Billy Line cycleway (National Cycle Route 2 cycleway). The existing cycle path is to be upgraded to a new 3m wide cycle path which sits on top of the embankment.

Frontage 2: Billy Line South

Frontage 2 comprises of steel sheet piled walls, with raised earth embankments included where the defence alignment crosses existing utility pipes. The existing cycle path is to be upgraded to a new 3m wide cycle path which sits adjacent to the sheet-piled wall.

Frontage 3: A3023 Road to 9 Coastguard Cottages (the Look Out)

Frontage 3 comprises a number of structures which join to form a continuous flood defence. These structures include:

- A3023 Flood Wall. The A3023 floodwall comprises of interlocking trench sheeting with a reinforced concrete cap.
- Ship Inn Raised Carpark. The flood defence consists of a raised earth bund supported by the Ship Inn Courtyard Retaining Wall.
- Ship Inn Courtyard Retaining Wall. The L-shaped retaining wall is a reinforced concrete wall that supports the raised earth mound and incorporates access steps to the Ship Inn pub courtyard.
- Ship Inn Flood Wall. The Ship Inn Flood wall comprises of a sheet-pile retaining wall, reinforced concrete capping beam, and topped with a reinforced concrete wall and glass flood barrier
- Ship Inn Annexe Flood Wall. The Ship Inn Annexe Flood wall comprises a sheet-pile retaining wall, reinforced concrete capping beam, reinforced concrete footpath and reinforced concrete cladding flood wall
- 10) Flood Gates:
- Ship Inn Flood Gate (Flood Gate 1). The Ship Inn Flood Gate is a lift-hinged flood gate incorporating timber cladding on the dry side of the defence. The gate is stowed against the upstand wall of the Ship Inn Annexe Flood Wall and swings seawards

Frontage 4: The Look Out to No 24. Langstone High Street (the Winklemarket)

Frontage 4 defences consist of new reinforced concrete flood walls in front of the existing garden walls that run along the frontage. The defences are monolithic structures which consists of:

- New flood wall in front of the existing boundary walls formed of either pre-cast concrete shuttering blocks (Stepoc Blocks) or reinforced concrete.
- New 1.5m wide reinforced concrete footpath
- New reinforced concrete walls in front of the existing quay walls, with reinforced concrete apron and sheet pile toe

Flood Gates:

- Watchtower Drop in Flood Boards (Flood Gate 2). 1 no. demountable flood defence is to be installed at the Watchtower. The demountable flood defence is to be of a drop in flood board arrangement.
- Green Cottage Flood Gate (Flood Gate 3). The Green Cottage flood gate is a twin leaf, lift-hinged flood gate with timber cladding.

Frontage 5 Langstone High Street to the field north of Royal Oak

Frontage 5 consists of a continuous flood defence that largely comprise the following structures:

- Royal Oak Flood Wall. The royal oak is a reinforced concrete L-shaped flood wall with a buried apron and sheet pile toe. Between Chainages F5 CH10-14 and CH58-94, the flood wall is a solid reinforced concrete wall. Between Chainages F5 CH14-58 the flood wall is topped with a 600mm high flood glass barrier.
- Allotment Floodwall. The allotment floodwall is a reinforced concrete L-shaped wall that is to be constructed behind the existing brick wall. Trench sheeting is driven behind the existing allotment wall to provide a cut off for seepage.
- Footpath Floodwall. The footpath floodwall is situated along the boundary of No 21 Langstone High Street. It is a reinforced concrete L-Shaped wall with trench sheeting to provide a cut off from seepage. The floodwall is to replace the existing breeze-block wall that runs the length of the property.
- Earth Embankment. The frontage 5 flood embankment is situated in the field north of the Royal Oak
- Works also include the replacement of the current High Street slipway with a new reinforced concrete slipway, with a sheet piled toe.

Flood Gates:

- Winklemarket Pedestrian Flood Gate (Flood Gate 4). The Winklemarket flood gate is a single leaf, lift-hinged flood gate with timber cladding
- High Street Vehicle Flood Gate (Flood Gate 5). The High Street flood gate is a two leaf, lift-hinged flood gate with timber cladding
- Royal Oak Drop In Flood Boards (Flood Gate 6). The civil works are based on the drop in flood board arrangement

- Allotment Flood Gate (Flood Gate 7). The Allotment Flood Gate is a single leaf swing-hinge flood gate positioned on the landwards side of the flood wall. The flood gate is situated in the centre of the Allotment Floodwall where there is existing access to the allotment
- No. 21 Langstone High Street Floodgate (Flood Gate 8). No 21 Langstone High Street Flood Gate is a single leaf lift-hinged flood gate with timber cladding on both sides of the gate. The gate has a dual purpose as a flood gate and also a privacy gate for the Landowner

2 Drawing/Specification References

The below references are correct at time of writing but may be modified by Project Managers Instruction

2.1 Scope

- As specified within section “S1800 Clients work Specifications” of Langstone Construction Scope_v7

2.2 Drawings

- As specified within section “S1802 Drawings” of Langstone Construction Scope_v7

3 Special Considerations

The project is located each side of the traffic sensitive A3023 Langstone Road, close to stakeholder properties of which a number are grade II listed. The work frontages are within sea inter-tidal foreshore and heavily vegetated areas, including Schedule 9 species as well as being habitat for a number of protected species requiring consideration within the works programme and protection or relocation. This Method Statement should be read in conjunction with the below documents

- Langstone CEMP 1.0
- Langstone CTMP 1.0

4 Hazard/Risk Assessments

Various reports and investigations have been undertaken during the design phase of the project to guide the design and submitted planning applications. These reports have been considered within the chosen methodologies to successfully deliver the scheme

This Method Statement is a high-level outline document describing the main working methods. Package specific Method Statements and Risk Assessments shall be produced and approved

in accordance with company procedures prior to undertaking the works. These approved RAMS will be briefed to the Operatives involved in the operation following site induction.

Jacksons undertake constant review and monitoring to ensure RAMS are effective and being adhered to. As part of this process a brief back review of RAMS, typically held within 2 weeks of initial briefing, is undertaken to re-brief the RAMS and take feedback from the workforce as to any additional hazards, concerns over risk management or working practices that require to be addressed.

This proactive approach to safety is further supported by Jackson's See It Sort it, which uses a phone based reporting app, and Stop Think Reassess philosophy which empower all site personnel to embrace safety culture and report any issues, concerns or best practice moments to the project team and our whole QHSE team ensuring not only that the project team can drive change but also so that trends within the company and industry can be assessed and targeted.

QHSE GUIDANCE

Quality Health Safety Environment

Jackson

Jackson Share It App

Jackson App

For guidance on how to download and use the app, please scan the QR code below

For further information please contact Sarah Rose
srose@jackson-civils.co.uk

GOOD WORKS

Jackson	STOP, THINK, REASSESS 	No: /STR/

Contract:

To be completed: When there's any change to the accepted Safe System of Work (SSOW). This change to the activity must be a minor change and for a short duration only. If not – then re write the RAMS.

Date:		Time:	
Produced by:		Signature:	

Part 1. STOP	Briefly describe the activity requiring a change to the Safe System of Works (SSOW)

Part 2. THINK	**Risk Assessment.** Explain why the RA is no longer applicable, and what new hazards exist because of any new activity?

Part 3. REASSESS	**Additional Controls or improvements Required?** What additional control measures are now required, describe them below.

At the end of the temporary changes listed, the SSOW reverts to the original RAMS document

Close out: The above Stop, Think and Reassess document is no longer in use:

Name & Signature	Time & Date

Now Ensure that all personnel involved in the activity are briefed on the latest plan. If required any additional controls may be added on an attached separate sheet

5 Personal Protective Equipment/Safety Equipment/Special Precautions



Head (EN 397) | **Foot** (BS EN 345-1) | **Hi-vis vest and trousers** | **Hand** (BS EN 388) | **Eye** (EN 166)

PPE in accordance with –

- Safety footwear conforming to EN 20345;
- High-visibility clothing conforming to EN 471 and trousers.
- Safety gloves conforming to EN 388.

Hearing protection and task specific PPE/RPE as identified in the risk assessments as required.

6 Barriers/Fences/Warning Signs

The works boundaries will be secured with double clipped heras fence. Tidal frontages will be segregated by heras and heras gates at site access points and with silt fencing demarcating the seaward extents of the works frontage (see Figure 1) – full fencing is not possible along this length as the tide and wave action against the heras fencing would damage the fencing and risk injuring aquatic life.



Figure 1: Foreshore Silt Curtain

Construction site notifications shall be displayed at all compound and frontage access points prohibiting non-authorised persons and detailing H&S requirements. Appropriate signage shall be displayed at regular intervals around the site perimeter and around on-site hazards such as excavations.

Barriers shall be used to form safe routes and segregate pedestrians from vehicles, segregate hazardous activities and demarcate activities on site and within the site compounds

7 Constraints/Restrictions/Permits

7.1 Operatives & Staff

- All operatives will not start on site without the appropriate training and certification. All Operatives will hold the minimum of a CSCS H&S accreditation.
- All Workers and Staff will attend a Site Induction.
- No work shall be undertaken without a Risk Assessment having been completed, briefed and operative signed to confirm they have received and understood the briefing

7.2 Permits

- All works that require permits (breaking ground, hot works, temporary works etc.) will not begin without the thorough check and balances required prior to permit issue.
- S278 agreements for site compound entrance
- TTRO parking suspensions
- Road space active and passive traffic management
- Path closure notices
- Permissive path closure notices
- STATS crossing/loading and temporary works agreements
- Ecological watch and briefs
- Archaeological watch and briefs
- F10
- Client permission to proceed
- Land ownership agreements (private, business and council)
- Tidal working
- CEMP conditions
- CTMP conditions
- Consent to place or store materials on the highway
- Green/Red parking dispensation permits

7.3 Stakeholders

- Maintain proactive and effective Stakeholder communication and engagement
- Communicate and agree upcoming Stakeholder access arrangements where access is to be restricted or altered
- Consideration to disturbance through noise, vibration and dust

8 Environmental Aspects

- All works shall comply with the requirements as set out within the CEMP
- Spill kits will be available on site at all times.
- All spillages are to be cleaned up immediately and contaminated material disposed of as contaminated waste in suitable containers.
- It is envisaged that minimal COSHH waste will be encountered or generated from this contract. If, however, COSHH waste is generated, it will be dealt with under Jackson Civil Engineering Ltd. Company procedures and disposed of accordingly.
- All general wastes are to be placed immediately into general waste bins or skips (where available) or removed from site to be disposed of accordingly.
- Skips will be segregated and signage will inform the workforce what waste materials are to be disposed of in which skip.
- All spillages, incidents and near misses are to be reported as soon as practically possible. The Site Manager will review these and report to the Client and up the management chain.
- A lockable secure COSHH is located on site in the site compound area. Data sheets are available on request for all materials stored in the cabin.
- Cleaning materials and data sheets are available to the professional cleaning company who attend site once a week for a deep clean.

9 Plant and Equipment

9.1 Vegetation clearance

- Work vans
- Handheld vegetation clearance – strimmer/brush cutter
- Chainsaws
- Flail mower – operated/remote controlled/excavator mounted
- Chipper
- MEWP
- Climbing equipment
- Tree protection fencing
- Excavator (3-8t) buckets or grab attachment
- Dumper (3t) or swivel cab dumper (6t)

9.2 Topsoil strip compound and frontages and placing of aggregate to form main compound

- Excavator (13t-21t)
- Single drum vibrating roller (6-12t)
- Swivel cab dumper (6-12t)
- 20t capacity aggregate lorries
- Concrete lorries
- Bog mats
- Heras fencing

9.3 Establish site office facilities

- HGV hiab
- Temporary site accommodation (40ft Welfare/offices/toilets/septic tank)
- Storage containers (15-40ft)
- Water bowser/pressure washer
- Fuel bowsers (bunded static/mobile)
- Excavator (13t-21t)
- Concrete lorries
- Vibrating roller
- Asphalt paver
- Street master tractor loader
- Pedestrian fencing

9.4 Site compound junction

- Traffic management
- Site fencing
- Excavator (5t)
- Breaker excavator attachment
- Dumper (3t)
- Floor saw/disc cutter and water suppression
- Hydraulic/pneumatic breaker
- Site and task lighting
- 110v generator
- 110v breaker
- Small tools
- Concrete lorries
- Cement mixer
- Vibrating compacting plate
- Twin drum roller (1.0-1.2m width)
- Telehandler (6-14m)
- Asphalt paver
- Street master tractor loader
- 20t capacity aggregate/asphalt lorries

9.5 Establish satellite compound facilities and Frontage boundary

- Temporary site accommodation (solar towable/20ft static)
- Storage containers (15ft)
- Water bowser/pressure washer
- Excavator (13t-21t)
- Concrete lorries
- Vibrating roller
- Pedestrian fencing
- Heras fencing
- Telehandler

9.6 Beach frontage haul routes

- Excavator (13t-21t)
- Single drum vibrating roller (6-12t)
- Swivel cab dumper (6-12t)
- Bog mats
- Heras fencing
- Silt fencing
- Bulk bags

9.7 Piling works

- Excavators (21t)
- MOVAX
- HGV hiab/rigid flatbed
- Dumper with offroad trailer
- Silent piling (Frontage 3 Ship Inn)
- Lifting equipment
- Telehandler

9.8 Concrete works

- Excavator (21t)
- 2-inch submersible pumps
- 110v battery storage “generator”
- Swivel cab dumper (6-12t)
- Twin drum roller (1.0-1.2m)
- Concrete skips
- Concrete lorry
- Wash out skip
- Shuttering
- High frequency vibrator
- Lifting equipment

9.9 Earthworks

- Excavator (13t-21t)
- Single drum vibrating roller (6-12t)
- Twin drum roller (1.0-1.2m)
- Swivel cab dumper (6-12t)
- Dumper (1t-3t)
- Excavator (3t-5)
- 20t capacity aggregate lorries

10 Materials (handling/storage/disposal)

As per the CTMP and CEMP materials and aggregate deliveries shall generally be directed to attend the main compound where they will typically be offloaded for redistribution to the satellite compounds or work frontages on a just in time basis. In select cases, such as sheet pile deliveries, these will be directed to attend the main compound for briefing and to ensure the satellite compounds or frontages are ready to receive the delivery and minimise any disruption or stacking within the highway.

Where practicable, preparation of materials may occur within the main compound before being taken to the satellite compounds and frontages for offload and use. An example of this is the partial preconstruction of reinforcement cages and concrete shuttering – see Figure 2 below.



Figure 2: Pre-Fabricated Cages

Arisings shall be brough back as excavated and waste shall be brought back at breaks or end of shift from frontages and satellite compounds to the main compound for segregation and disposal off site.

11 Labour and Supervision

Sufficient suitably trained, experienced and competent labour, supervision and engineering shall be provided for the works.

Site induction, RAMS briefings and daily sign on and briefings shall be held in the main compound prior to proceeding to the satellite compounds and work frontages. Morning and lunch breaks shall either be at the main compound or satellite compound dependant on the works frontage and ongoing tasks

12 Preparation of Works/Location of Services

Jacksons code of practices for Permit to break ground and permit to work under overhead services shall be adhered to. Permits shall be prepared by permit controllers, briefed and handed over to and signed by the supervisor and operatives. This process includes the items set out within PAS 128 Type D, C, B and A. Drawings shall be updated as per service providers requirements.

Service providers shall be notified, as required, where STATS providers require to attend with watch and brief. E.g. high-pressure gas.

Any service diversions shall be agreed to C4 and works undertaken either by Jackson to the STATS providers specifications or by the STATS providers/their contractors.

Engineers shall clearly set out the works and mark-up any services within the vicinity before briefing the workforce.

UXO surveys will be undertaken as required and where appropriate a toolbox talk shall be given to the workforce on identifying suspected UXO and actions to taken.
Task RAMS will consider noise and vibration receptors and shall identify mitigation measures such as change of working method within certain areas or erecting of sound reducing hording.

Tree protection fencing shall be erected following vegetation clearance and before follow on tasks.



Figure 3: Protection of RPZ's

Silt fencing shall be erected along the seaward works boundary within foreshore working areas.
The requirements of the CEMP and CTMP shall be adhered to.

13 Emergency Procedures

General emergency procedures shall be briefed within the site induction.

Emergency response plans shall be prepared and briefed to the work force as required. These include but not limited to:

- Fire on site
- Fire at compound
- Temporary works failure
- UXO location
- Criminal incident – theft, vandalism, assault
- Road traffic accident

- Plant fire and/or breakdown
- Spill of fuel or oils
- Accident or injury to persons
- Service strikes
- Water rescue

First aiders details shall be briefed at site induction and included at first aid kit locations. These will be at site compounds.

Spill kits shall be available at site compounds and within large plant. E.g. excavators

14 Method of construction

RAMS briefings to be held prior to any work activity. Temporary welfare to be provided prior to main compound establishment.

14.1 Vegetation clearance

- Temporary path closures and diversions shall be established in line with consents agreements, and the works area secured from access by unauthorised persons
- Where required, sound reducing hoarding shall be installed. Refer to Figure 5 and Figure 6 for locations of sound reducing hoarding along Frontages 1A and 2. Refer to Figure 4 for typical acoustic barriers to be secured to the site perimeter heras fencing.



Figure 4: Acoustic Barriers



Figure 5: Frontage 1A Acoustic Barrier Locations



Figure 6: Frontage 2 Acoustic Barrier Locations

- An ecologist shall be present if required due to the time of year, scope requirements or if doubt exists.
- Engineer, supervisor and specialist subcontractor, as per the scope, shall agree:
  - Positions of Schedule 9 plants,
  - Protected habitats
  - Extents of low-level vegetation removal

  - Trees to be felled
  - Trees to be coppiced to ground level
  - Trees to be retained
  - Areas of habitat creation
- Low level vegetation shall be cleared using remote or excavator mounted flail and handheld brush cutters etc
- Trees shall be felled by chainsaw using appropriate best practice, this may involve tree climbing or MEWP access
- Apart from material to be used in habitat creation, all arisings shall be removed from site – either as logs or chipped
- Areas of Schedule 9 plants, as required, shall be fenced off with warning signs, removed or treated with attendant ecologist/specialist watch and brief. The required clearance diameter shall be adhered to and waste consignment notes completed
- The works shall be inspected to confirm all requirements have been undertaken

14.2 Topsoil strip compound and frontages and placing of aggregate to main compound

- Following vegetation clearance the engineer shall set out the required extents of the site clearance topsoil strip and location for topsoil stockpile bunds before confirming this to the supervisor and operatives
- Heras boundary fence and tree protection fencing shall be installed and inspected prior to proceeding
- The permit controller shall prepare and brief the supervisor and operatives on the permit to break ground and any constraints or enabling works required
- Topsoil shall be scraped up, by excavator (13-21t) down to the subsoil level and either side cast to bunds or loaded to swivel cab dumpers (6-12t).
- Dumpers shall place the topsoil to stockpile bunds
- Excavator to shape up topsoil stockpile bunds to the required height and side slopes
- Where required temporary works shall be installed to allow crossing of services. E.g. SGN high pressure gas main which shall be installed as per DNV temporary works design
- Engineer and supervisor shall confirm cleared extents achieved
- Formation shall be proof rolled to determine any presence of soft spots to be treated or avoided
- Engineer and supervisor shall set out and agree the route for temporary services (potable water and electricity)
- This shall be excavated to a minimum cover depth of 600mm, with arisings side cast for use in backfill
- The trench shall be blinded with as dug sand and the 32mm water pipe and electrical cables installed and blinded over with min 50mm as dug sand cover. 200mm subsoil backfill shall be lightly compacted before placing service marker tape above the services. Backfill shall continue up to formation level, compacting in layers
- Geotextile and geogrid shall be placed to formation, as per temporary works design, as works progress
- 6F5 and/or Type 1 803 shall be imported by HGV, placed and levelled with the excavator (13-21t) and compacted using single drum roller (6t-12t in layers in line with SHW Method Compaction

- Dust and aggregate moisture content shall be monitored. Damping down shall be undertaken as required. Wheel washing will be undertaken as required
- After each layer the engineer will mark out and confirm areas to receive additional make up

14.3 Establish site office facilities

- Engineer and supervisor shall agree the location of facilities as per the PMP site layout plan
- Permit to break ground shall be implemented and temporary works foundations shall be excavated and concrete poured ready for site offices/welfare as per the Temporary Works Design.
- The required area for the effluent tanks shall be excavated, lined with geotextile and blinded with 20mm shingle
- Site cabins (welfare, toilets, canteen, offices) and stores shall be brought to site by HGV hiab and rigid lorries and trailers
- The supplier hiab shall setup as per their lift plan and lift cabins/stores directly from delivery vehicle to their required position
- The cabins supplier fitter shall complete installation with the installation of stairs, removal of agreed internal doors, installation of interlinks.
- Potable water, grey water and black water connections shall be established
- Electrician to undertake electrical connections, install site compound lighting, install lighting and sockets to site stores. Undertake PAT testing
- Areas to receive metalled surface (Asphalt/concrete) to be marked out and installed
- Install pedestrian and heras fencing to establish designated areas and safe walking routes
- Mark out parking bays and erect signage to compound and storage locations

14.4 Site compound junction

- Traffic management to be installed as per Streetworks permits
- Site fencing to be erected to segregate works and install pedestrian/cyclist diversions
- Nights – remove existing island and surface under 2-way lights and traffic holds as required
- Days – undertake junction works using passive TM with traffic utilising the central hatched area of the carriageway
- Nights – install new island, surface and install road markings under 2-way lights and traffic holds as required
- All excavation or breaking works to be undertaken as per the briefed Permit to Break Ground requirements
- Excavation works within the SGN gas main easement and installation of temporary protection slab may require SGN watch and brief – TBC dependant on Temporary Works Design approval requirements
- SSEN or approved contractor to disconnect and pot end service connections to the 2no lamp columns in the east verge and 1no lit sign in the existing island
- 3-5t excavators to excavate to formation, use of breaker attachment to remove existing kerbs, haunching and hard dig. Where services present either hand dig or vacuum excavate as required

- Floor saw and break-out with excavator breaker and/or hydraulic/pneumatic hand breaker to form neat edges and any surfacing stepping arrangements
- Install the traffic island, build out and tactiles as per HCC standard detail – engineer to set out and brief. No single man kerb lifting, kerbs to be machine lifted where possible onto fresh concrete bed and tapped to line and level. Supervisor and engineer to inspect prior to installing concrete haunch and filling front void as per HCC standard details. Buff blister tactiles to be installed as per HC standard detail. Signs to be installed to island prior to backfilling with concrete to the required formation level
- Install the vehicle crossover as per HCC standard details
- Install asphalt base, binder and wearing courses to carriageway – new vehicle cross-over and around and in new traffic island. Method will involve both small asphalt paver and hand lay using twin drum roller (1.0-1.3m) and vibrating plate compactors
- Remove redundant road markings and install new
- Make good verges
- Confirm all works complete and remove traffic management and site fencing

14.5 Establish satellite compound facilities and Frontage boundary

- Precondition photos
- Engineer to mark out compound extents and agree with supervisor
- Install traffic management and temporary ramps to kerbs as required
- Install boundary fencing, access gates, signage and debris/vista netting as required
- Where required install temporary works to protect services (may only be required for certain activities)
- Where required topsoil strip and side cast to bund, install geotextile and import 6F5 or Type 1 803 from the main compound
- Install welfare and storage facilities
- Install pedestrian fencing and signage to establish pedestrian walkways

14.6 Beach frontage haul routes

- Works are within the intertidal area and may become inundated at high tide. The extents of the affected areas also depend on the neeps/springs cycle. Tide times shall be monitored and included within the morning brief. All plant will need to be removed to designated safe areas prior to being inundated unless otherwise agreed with the site management
- CBR plates tests shall have been undertaken prior to the main works and provided to the Temporary Works Designer to allow suitable design of the haul route construction. This shall be designed to allow planned vehicles including 21t excavators, 6-12t dumpers, site van and trailer and activities such as piling.
- It is expected that the haul road shall be installed at a constant elevation to make incoming tides predictable and not result in the rising tide creating “islands” that could make egress for the workforce more challenging
- Engineer to set out and agree extents of the frontage working area and haul road with Supervisor and Ecologist taking into account areas of Golden Samphire which may need to be relocated as per the CEMP
- Footway closures and diversion routes to be installed Frontage 3 and 4
- Install works access gates and heras fencing to secure the works and protect the public

- Silt fencing to be installed along seaward side of the works
- Excavators shall be mobilised direct to the site frontage as per the CTMP. They shall be fitted with bio-oil. Prior to offload they shall be inspected for cleanliness and any invasive species. Oil spill kits shall be mounted about the excavator to allow for rapid response to any oil leakage event
- Excavator (13-21t) to dig the haul road down to the depth required for the Temporary Works Design, segregating any distinct layers. It is expected that the material can be side cast.
- Install geotextile and geogrid, as per the Temporary Works Design, and backfill using the side cast beach material before compacting in layers using a single drum roller (6t-12t) in layers in line with SHW Method Compaction. Any distinct layers of excavated material shall be separated by geotextile to prevent mixing during use of the haul road and to prevent mixing when the haul road is later removed.



Figure 7: Foreshore Geogrid

- It is not expected that this activity will create dust as the ground is wetted every tide, in any case damping down will be undertaken, if required, to prevent dust from being created
- Should soft spots be identified the material shall either be excavated and backfilled with the arisings in layers or the material segregated for later reinstatement and select backfill used, or bog mats may be buried to stabilise the formation. The treatment shall be confirmed with the Temporary Works Designer

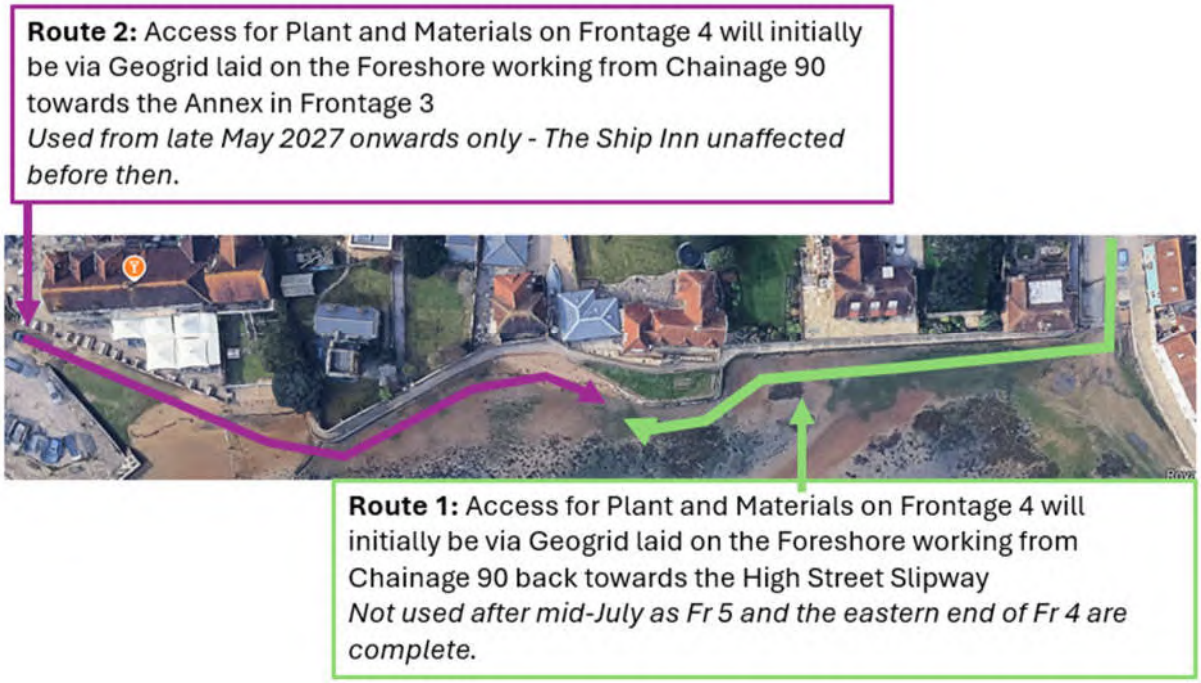


Figure 8: Frontage 3 to Frontage 4 Foreshore Access Track Route

14.7 Piling works

- Works are within the intertidal area and may become inundated at high tide. The extents of the affected areas also depend on the neeps/springs cycle. Tide times shall be monitored and included within the morning brief. All plant will need to be removed to designated safe areas prior to being inundated unless otherwise agreed with the site management
- Excavators (21t) with MOVAX attachments and press in piling (Frontage 3 Ship Inn) shall be mobilised direct to the site frontage as per the CTMP. They shall be fitted with bio-oil. Prior to offload they shall be inspected for cleanliness and any invasive species. Oil spill kits shall be mounted about the excavator to allow for rapid response to any oil leakage event



Figure 9: 21t Excavator & Side Grip Movax



Figure 10: Silent Pile Press

- Sheet piles shall be derived direct to the site frontage as per the CTMP on flatbed or Hiab HGV
- The engineer shall confirm the setting out requirements with the piling contractor before setting out the line and level of the piles. Following setting out, the engineer shall brief the subcontractor and Jackson supervisor to ensure all parties agree with and understand the setting out. E.g. centre line, levels and offsets
- A permit to break ground shall be issued by the permit controller and briefed to the supervisor and operatives. Any services shall be marked out on site and a copy of the permit and service drawings issued
- A trench shall be formed and batted back along the alignment of the sheet piles such that the MOVAX will be able to drive piles to depth without being hindered by existing ground being too high
- Vibration monitoring stations shall be established in designated positions as per the CEMP. These shall have email and/or text message trigger warnings as per the CEMP to BS 7385-2



Figure 11: Vibration Monitoring Stations

- Noise reducing barriers shall be erected between the pilling activity and the adjacent properties to reduce noise impact on the stakeholders. Refer to Figure 12 for indicative noise attenuation set-up along Frontage 4.

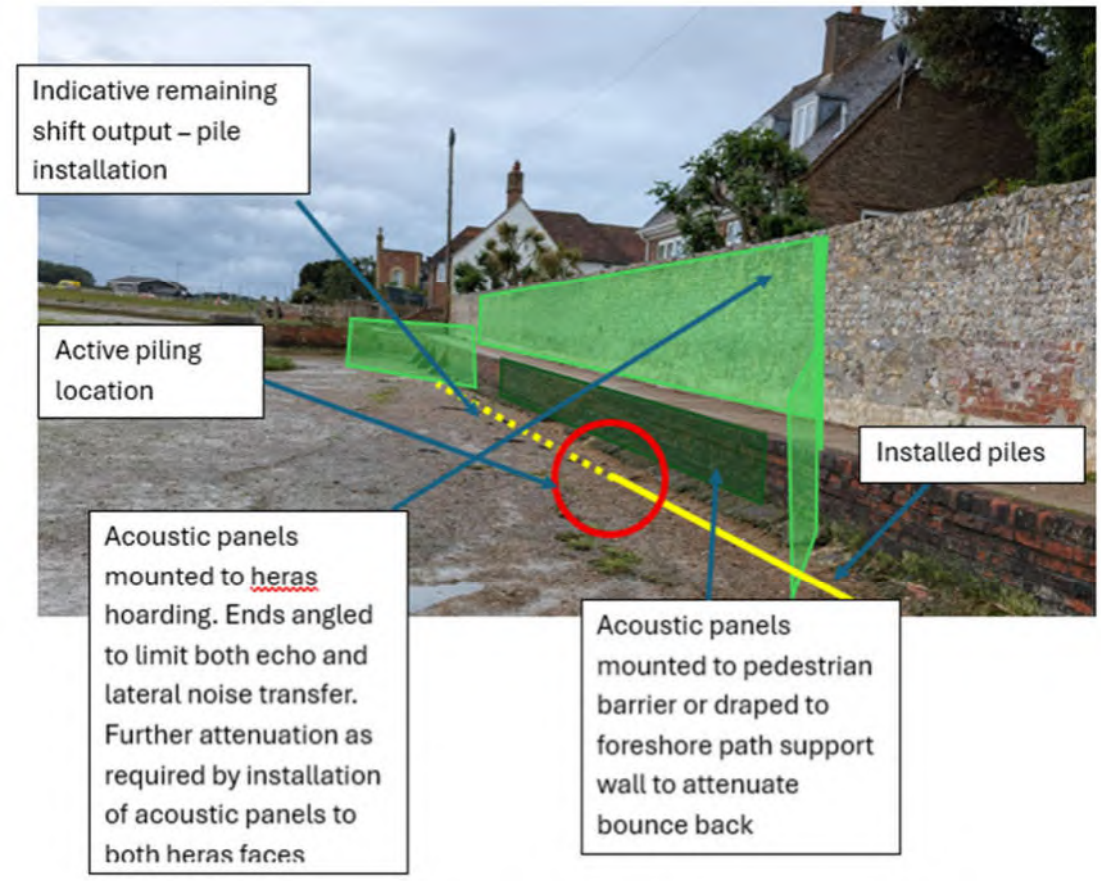


Figure 12: Indicative noise attenuation set-up

- The sheet piles shall be lifted and tracked along the foreshore haul road as required by the 21t excavator using lifting apparatus such as 4-leg chains and pile shoes or as otherwise detailed in the lifting schedule
- The 21t excavator with MOVAX attachment shall grab a sheet pile by its side and manipulate the pile into a vertical orientation. The pile shall then be aligned with the pile cut off wall centre line and orientation and pushed slightly into the ground to stabilise the base position. The banksman shall confirm the pile is vertical in both planes using a spirit level before the MOVAX vibrates the pile into the ground. The banksman shall direct the excavator operator to maintain the pile vertical. Typically, communication is with combination of ear defending walkie-talkie headsets and hand signals. The pile is vibrated to the required level or until refusal
- This process is repeated with each new pile being carefully engaged with the clutch of the previous pile.
- for the sheet pile wall to be continuous through Frontage 3 and 4 foreshore it is expected that either works will commence at the boundary or one Frontage will be undertaken before continuing to the next
- Should any piles reject and fail to be installed to the required depth, the engineer shall survey these and discuss via TQ with the designers to determine if further driving is required or if the pile shall be cut to the required finish height

- Frontage 3 adjacent to the Ship Inn may have areas of sheet pile installed by press in piling methods. This requires a row of sheet piles to have been installed by MOVAX for the press in piling equipment to be lifted and installed onto. The press in piling equipment is then fed a pile, by the attendant excavator, which is hydraulically pressed down into the ground using both the weight of the equipment and the reactive resistance force that is generated against the previously installed piles
- Frontage 3 A3023 cut off wall works to install the sheet piles will require a temporary traffic light-controlled lane closure adjacent to and to access the works. A 15-17t wheeled excavator with the MOVAX attachment is planned to be used, this reduces the footprint and temporary works that a 21t tracked excavator would require, speeding up the process and reducing the duration of impact on A3023 traffic

14.8 Foreshore Concrete Works

- Works are within the intertidal area and may become inundated at high tide. The extents of the affected areas also depend on the neeps/springs cycle. Tide times shall be monitored and included within the morning brief. All plant will need to be removed to designated safe areas prior to being inundated unless otherwise agreed with the site management. All placing and finishing of concrete must be completed 90 minutes before being inundated with sea water or as otherwise confirmed by the suppliers mix design
- Excavators (21t) shall be mobilised direct to the site frontage as per the CTMP. They shall be fitted with bio-oil. Prior to offload they shall be inspected for cleanliness and any invasive species. Oil spill kits shall be mounted about the excavator to allow for rapid response to any oil leakage event
- The engineer shall confirm the setting out requirements with the Supervisor and Operatives Following setting out, the engineer shall brief the supervisor and operatives to ensure all parties agree with and understand the setting out. A laser level shall be used for level control

14.8.1 Reinforced Concrete Bases

- A permit to break ground shall be issued by the permit controller and briefed to the supervisor and operatives. Any services shall be marked out on site and a copy of the permit and service drawings issued
- Excavators shall dig down to form a smooth flat base of excavation approx. 50mm below base of proposed concrete structure. Where excavations are greater than 1.2m the sides of the excavation shall be battered or stepped back at a 1:1 in cohesive or sound soils or 1V:2H in beach material and loose soils. Where required the batter or steps may be reduced further or trench supports used where space is constrained. Along the beach foreshore it is anticipated that temporary works shall be required to prevent the existing sea wall from being undermined by soil movement or wash out prior to the new sea wall/flood defence being completed whilst not impacting on the ability to install the sea wall shuttering or subsequent concrete mass fill to the void between the existing and new sea wall - The exact method shall be determined following a set of trial holes to determine wall foundation toe depth and material properties at that depth; it is anticipated that options may include
    - pushing or vibrating temporary trench sheets at the toe of the wall
    - Hit and miss mass concrete underpinning
    - Excavate and concrete fill narrow slip trench

  - Shotcrete
  - Sandbags
  - Concrete filled and pinned sandbags
- It is expected that the 21t excavator shall undertake the bulk of the excavation work, forming the rough excavation between the existing sea wall and the newly installed sheet piles plus any safety batters. A small excavator (1-3t) shall then work in the trench carefully removing material from the face of the existing sea wall, the face of the new pile wall and fine grading the base of the excavation, side casting arisings for the 21t excavator to clear. A couple of operatives shall work with the small excavator to carefully clear material from delicate or awkward positions such as the sheet pile pans
- Concrete blinding shall be placed to the base of the excavation with care taken to achieve the required level and smooth finish. It is anticipated that metal screed rails (reusable or sacrificial) shall be set to level using a laser level, setup by the engineer, on small piles of stiff concrete. This allows the concrete blinding to be screeded to level, rails retrieved and infilled before being bull floated to a smooth finish. Prior to pouring the engineer shall check the level of screed rails, and again check levels after the blinding has cured, marking up any high or low spots
- Shutters and reinforcement cages shall be prefabricated as far as practicable within the main compound before being taken by trailer to the remote compound/site frontage to be offloaded and positioned as required by the attendant 21t excavator
- Following high tide receding, the excavation shall be pumped dry and cleaned using pressure washer and/or air lance
- The engineer shall have set out the alignment of concrete shutter face prior using concrete capable nail gun, then marking out the alignment with the rope paint void technique. A hit and mis approach is anticipated when forming the concrete bases and walls. Efficiency options shall be discussed with the designers, and if agreed, reinforced concrete bases may be poured in a continuous/grouped pour between expansion joints by introduction of crack inducers.
- The prefabricated reinforcement cage, complete with preinstalled sheet pile waling beam shall be lifted from trailer or satellite compound storage area using the 21t excavator and 4-leg chains (the exact technique shall be determined in a segregated environment within the main compound but is expected to utilise scaffold poles as temporary cage stiffeners to prevent bending of the cage during lifting and any loosening of tie wire or movement of bar positions). The excavator shall track to the work area, with the aid of banksmen to ensure safe transit and clear all persons from red/amber zones, before placing the cage to the required location on top of concrete spacer blocks as required for the concrete cover thickness
- The waling beam shall be bolted to the sheet pile wall
- The remaining reinforcement shall be installed
- The reinforcement shall be inspected and signed off by Supervisor, Engineer and Client Clerk of the Works
- On “hit” bays the end shutters shall be installed along with spacers
- The base back shutter or crack inducer shall be installed as required (to be determined during the ECI phase)
- Kicker shutters shall be installed, braced and supported to line and level. Once installed these shall be inspected and surveyed by the engineer
- The prepared concrete pour shall be cleaned out by air lance and hand picking

- Supervisor, Engineer and Client Clerk of the Works shall undertake and record pre-pour checks before authorising the concrete pour to commence
- Concrete wagons shall deliver concrete to either the Ship Inn Compound for Frontage 3 and 4 foreshores or the east end of Langstone High Street for Frontage 4 and 5 foreshores
- Concrete shall be placed into a concrete skip to the level identified within the lifting schedule for the required planned working radius of the 21t excavator. The 21t excavator shall track with the concrete skip to the works area, using banksmen, and in combination with the operatives place the concrete
- A high frequency poker shall be used to remove air voids from the concrete. Battery pack "generators" shall be used where practicable over petrol generators to reduce sound emissions from the works
- Concrete shall be finished as per the Specification requirements and marine suitable curing agent applied
- Concrete placing shall be completed at least 90 minutes prior to being inundated with sea water, or as required by the suppliers mix design
- Concrete lorries shall return to the main compound to wash out in the designated area
- Concrete skips, dependant on type, shall either be returned to the compound to wash out in the designated area and lined skip, or be taken to The Ship Inn compound to be washed out in the designated area and lined skip

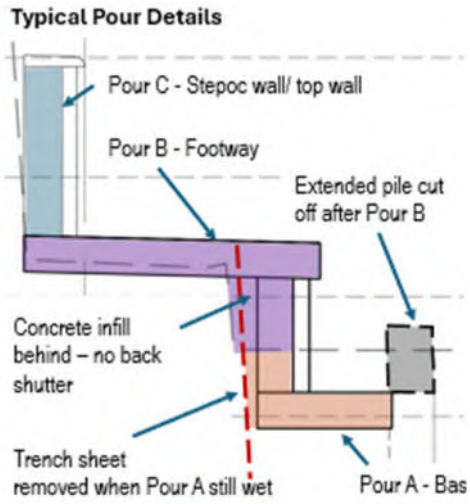


Figure 13: Frontage 4 Typical Pour Details

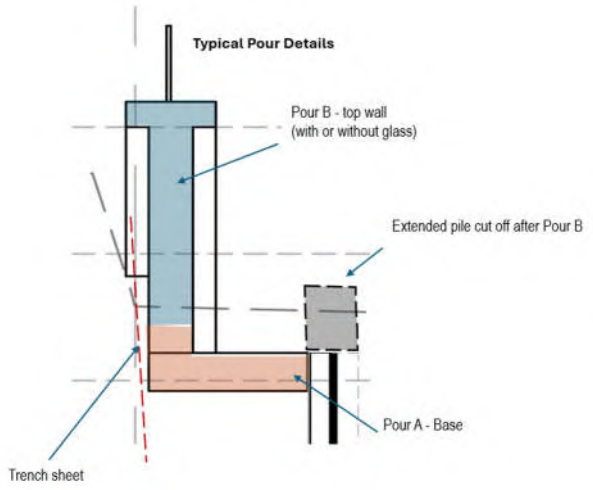


Figure 14: Frontage 5 Typical Pour Details

14.8.2 Concrete walls and walking platforms

- The pouring of the reinforced concrete sea wall between the base and walkway is expected to be constrained by tide as it will inundate to some extent at high tide. Walkways and any flood wall poured as a separate pour above the walkway level is not expected to be affected by tide, only storm events or extreme high spring tides.
- As with the bases, the shutters and reinforcement cages are to be preconstructed as far as possible in the main compound, then brought to site to be lifted and placed into position using the 21t excavator after high tide has receded
- On site finishing of reinforcement and shutters shall take place

- Pre-pour checks of rebar, shutters and alignment/level/plumb shall be completed and recorded prior to authorising the concrete pour to commence.
- Concrete shall be delivered to the frontages, placed, compacted, finished and concrete lorries and skips washed out in the same way as the bases

14.9 Earthworks

- Earthwork bunds are to be constructed in Frontage 1A, 2, and north extent of Frontage 5
- Vegetation clearance and topsoil strip shall have previously been completed
- The engineer shall set out the earthworks. E.g. toe offsets, batter rails or angled travelators, and levels with rails and travelators or laser level. To achieve bund shape, levels and compaction an overfill and trim back approach shall generally be used which may require different setting out methods depending on the works stage. The setting out shall be briefed and agreed with the supervisor and operatives
- A permit to break ground shall be issued by the permit controller and briefed to the supervisor and operatives, with services visibly marked out on site. As part of the permit process trial holes may be hand or vacuum dug to determine the position of apparatus. A copy of the permit and service drawings shall be provided
- Where works are in the proximity of the water main within Frontage 1A and 2 Temporary works design or limited vibration may be required to be adhered to – this shall be determined within the ECI phase. Trial holes may be required to confirm alignment and depth of the pipe or any affected joints or risers. If the water main is asbestos type, then asbestos toolbox talks shall be given to all those involved with the works.
- A protection slab will be installed over the location of the water main on Solent Way, protecting this from crushing from plant movements – see Figure 15 for typical protection slab measures.



Figure 15: Protection Slab Install

- It is anticipated that works shall commence furthest from the access point to prevent running over completed works and to minimise rework. The bund works activities may be completed in sections as determined and required on site. This working direction may change if required for temporary works to protect the water main

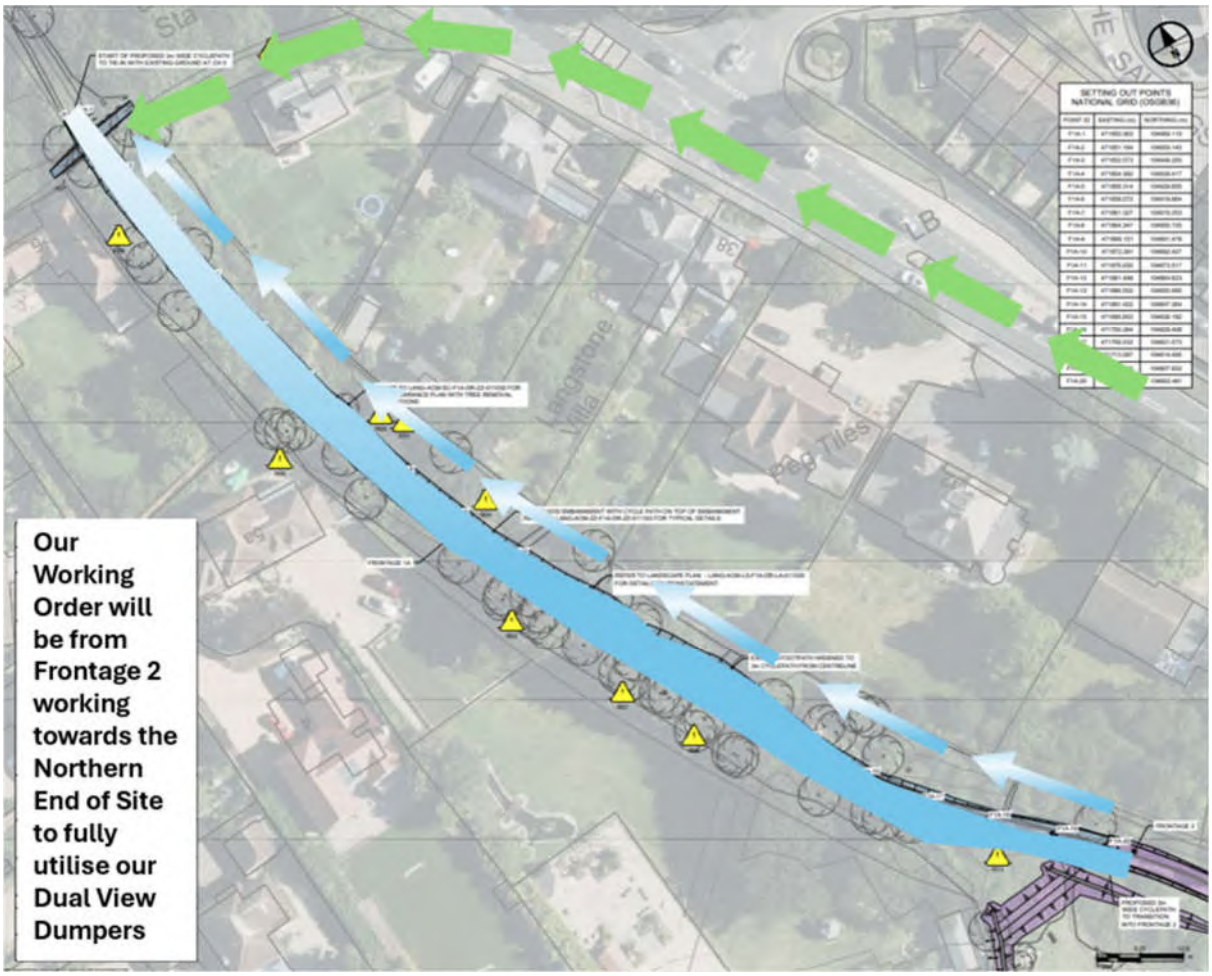


Figure 16: Frontage 1A Construction Sequence

- Soil and stones shall be excavated using a 13-21t excavator and loaded to road legal 6-12t swivel cab dumpers. The swivel cab will allow all movements to be in the forwards direction of the cab. The dumpers shall take the arisings to the main compound for segregated storage and disposal off site in line with the CEMP and Site Waste Management Plan



Figure 17: 10t Swivel Cab Dumpers

- Wheel wash and road sweeping will prevent and remove any debris from the highway
- The formation shall be excavated to a generally smooth finish and checked and surveyed for elevation and extents by the engineer prior to proceeding to the next stage
- The formation shall be proof rolled with a single drum vibrating roller (6-12t), witnessed by the engineer and supervisor to identify any soft spots requiring remediation
- A separating geotextile shall be placed, as required, to the formation and sides of excavation
- Type 1A fill shall be delivered by HGV to the main compound, then loaded by excavator to the dumpers to take to site
- The excavator shall spread the 1A in even layers (150-225mm dependant of compaction plant) and compacted by the single drum vibrating roller (6-12t) in line with SHW method compaction requirements
- Once above existing adjacent ground level, the 1A layer will need to be spread to extend beyond the intended batter by approx. 0.5m, this is to allow for compaction and cutting back to the required shape once all the fill has been placed to a section of bund
- Once filled to the required level, the engineer shall oversee the cutting and grading of grips at 5m intervals and any change of direction to form the side batters, taking account of any surface treatment (i.e. topsoil or path construction etc.). The engineer shall check these against design and survey the toe, mid and top of grip. The excavator and operatives shall then blend between the grips to form a smooth bund alignment
- Generally, in Frontage 1A and 2 it is expected that topsoil, when stripped, will have been placed to bunds on site that run along the length of the works, minimising road movements of storing the topsoil in the main compound, minimising translocation of plant species and save the need to travel over the constructed 1A flood bund with heavy dumpers full of topsoil may lead to rework to make good any ruts etc
- Temporary topsoil bunds shall be spread to the working area leaving a small bund approximately halfway up the batter for later on – this allows smaller excavators, needed for installing the path, to reach and complete the topsoil
- The top of bund shall then be graded to level taking account of varying overlays i.e. topsoil or path
- 1A arisings from cutting of batters or trimming top of bund to be reused in the next section of bund either as works progresses in segments or by pausing import when approx. 75% of the length of bund is constructed and using the arisings to form the next section of bund. Volume of import shall be monitored to ensure excess material is not imported
- A 5t excavator, 3t dumper and 1.0-1.2m twin drum roller shall be used to complete the path subbase. Materials shall be delivered to the main compound then brought out to the frontage either by dumper or site van
- Edgings shall be installed
- Geotextile layer shall be installed to path formation
- Type 1 803 shall be brought to the works in 3t dumpers loaded in the main compound, placed in layers by the 5t excavator and compacted by the twin drum roller. A vibrating plate compactor will be used around the perimeter to ensure compaction and prevent the roller damaging the edgings

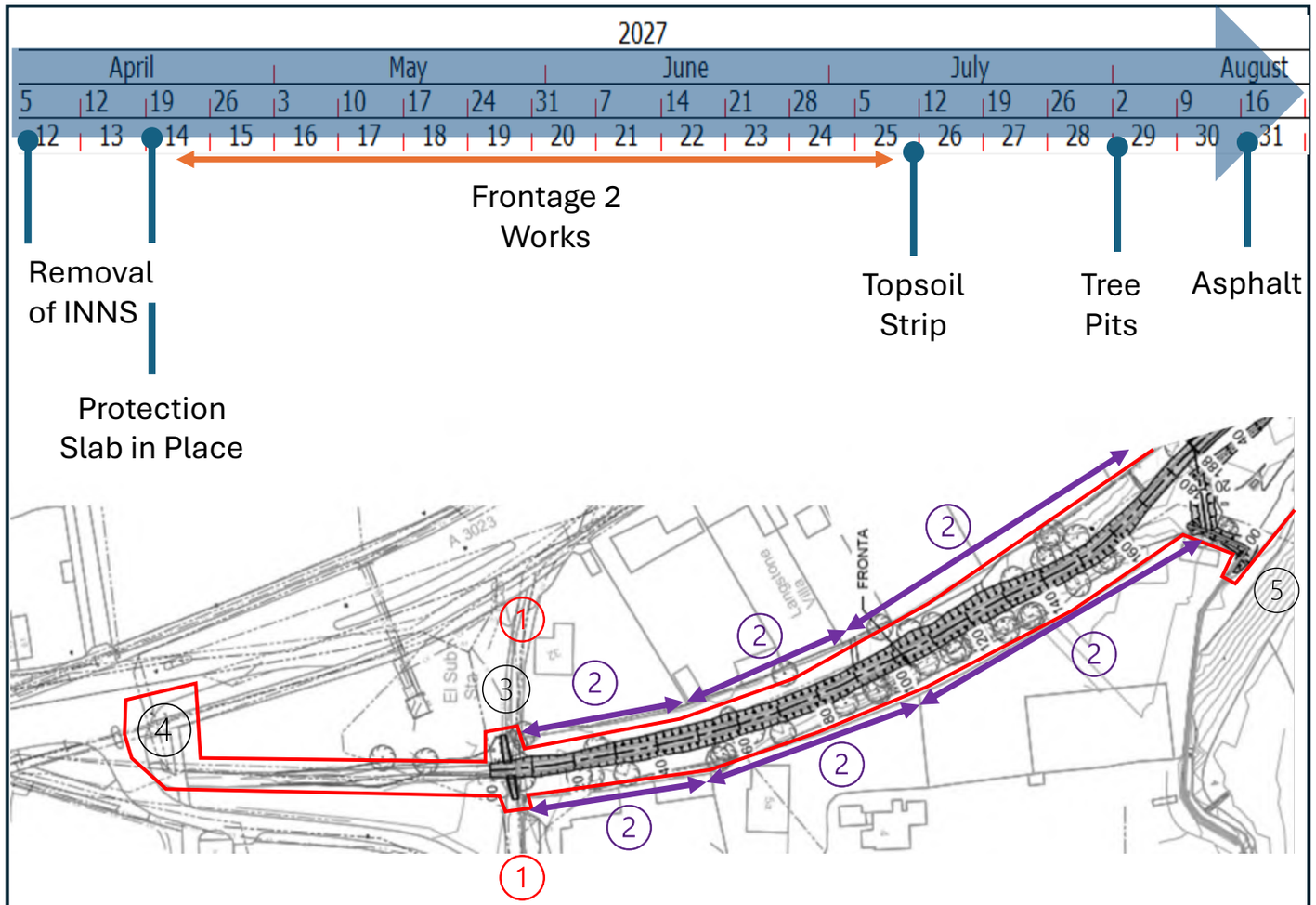
Appendix A2 – Methodology and Sequencing Overview

Work Frontage 1A
Methodology
Weeks 12-31

Frontage Layout, Diversions and Key Plant

Key

1. Closure Point of Solent Way
2. Acoustic Barrier Extent
3. Site Personnel Access Point
4. Plant & Material Access
5. Silt Curtain Location



Info

Works Entrance
From Mill Road to frontage 1A for earthworks and footpath/cycleway.
Solent Way to be diverted vial Mill Lane. Secure fencing will be erected to both frontages.

Diversions
The Solent Way public Right of Way and Footpath will be diverted via Mill Lane.

Security
Full coverage of the site and compounds will be obtained by setting up CCTV cameras with restricted vision to protect residents' privacy.

Acoustics
To protect the enjoyment of property owners on Mill Lane and Langstone Road that back onto Frontage 1A Acoustic Barriers will be installed to fencing in localised works areas and relocated as the works on Frontage 1A graduate North.

Protection to RPZ's



Foreshore Silt Curtain



10t Dual View Dumper



Removal of Won Material



Acoustic Barriers

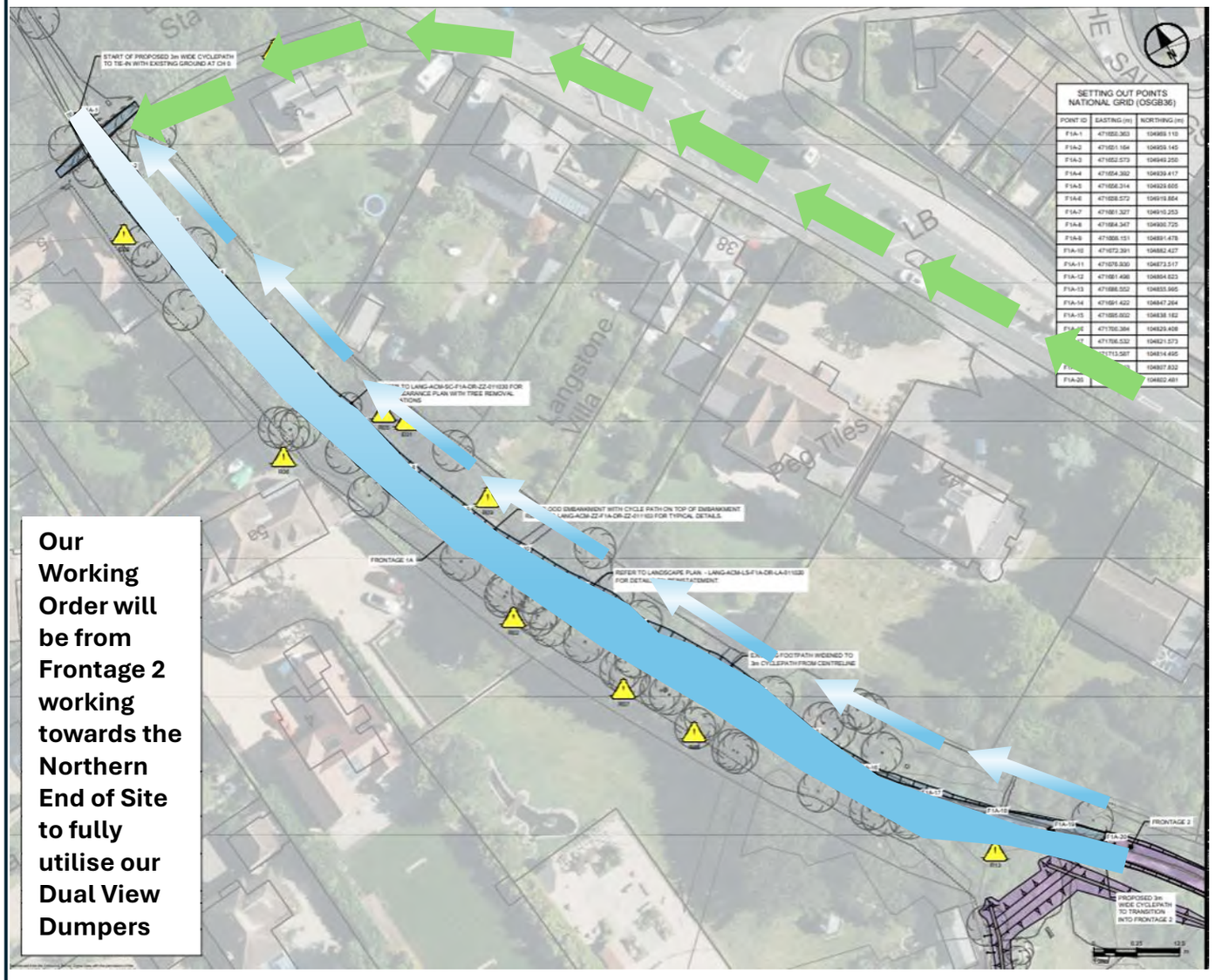


Work Frontage 1A
Technical Narrative

Key Site Activities

Main Works
Frontage 1A is intrinsically linked to the works on Frontage 2. As all access will be from Solent Way working initially South through Frontage 1A to deliver Frontage 2 our first activities will be **to clear 1A from vegetation and INNS** to enable construction vehicles to access along both frontages. This will enable **the installation of the protection slabs** to the Portsmouth Watermain and City Fibre ducting at the Solent Way crossover.

We will utilise a **rapid setting high strength grout** to set the cover slabs in place to ensure minimal downtime on Frontage 2. Three Cornered Garlic will be removed by a licensed contractor for within a localised, fenced compound to ensure that the INNS do not migrate during removal.



Plant

The plant utilised will be limited in size due to the nature of the works on Frontage 1A.

Our primary plant will be an enhanced visibility **dual view dumper**; this will be road registered to enable movement of material from the main compound to the work face.

This will be supported by a **13t 360-degree excavator** for material excavation and distribution (see below)

A smaller ride on **roller/compactor** will be utilised for consolidating the engineered fill.



13t Excavator

Temporary Works
Our Key temporary works will be the **installation of the protection slab** over the location of the existing water main on Solent Way, protecting this from crushing from plant movements. *(see right)*

In addition to this we will install **a silt curtain** along the foreshore prior to progressing into Frontage 2; this will **protect the SSSI** from migration of sediments from the construction frontage, this will remain in place for Phase 1A.

Protection Slab Install



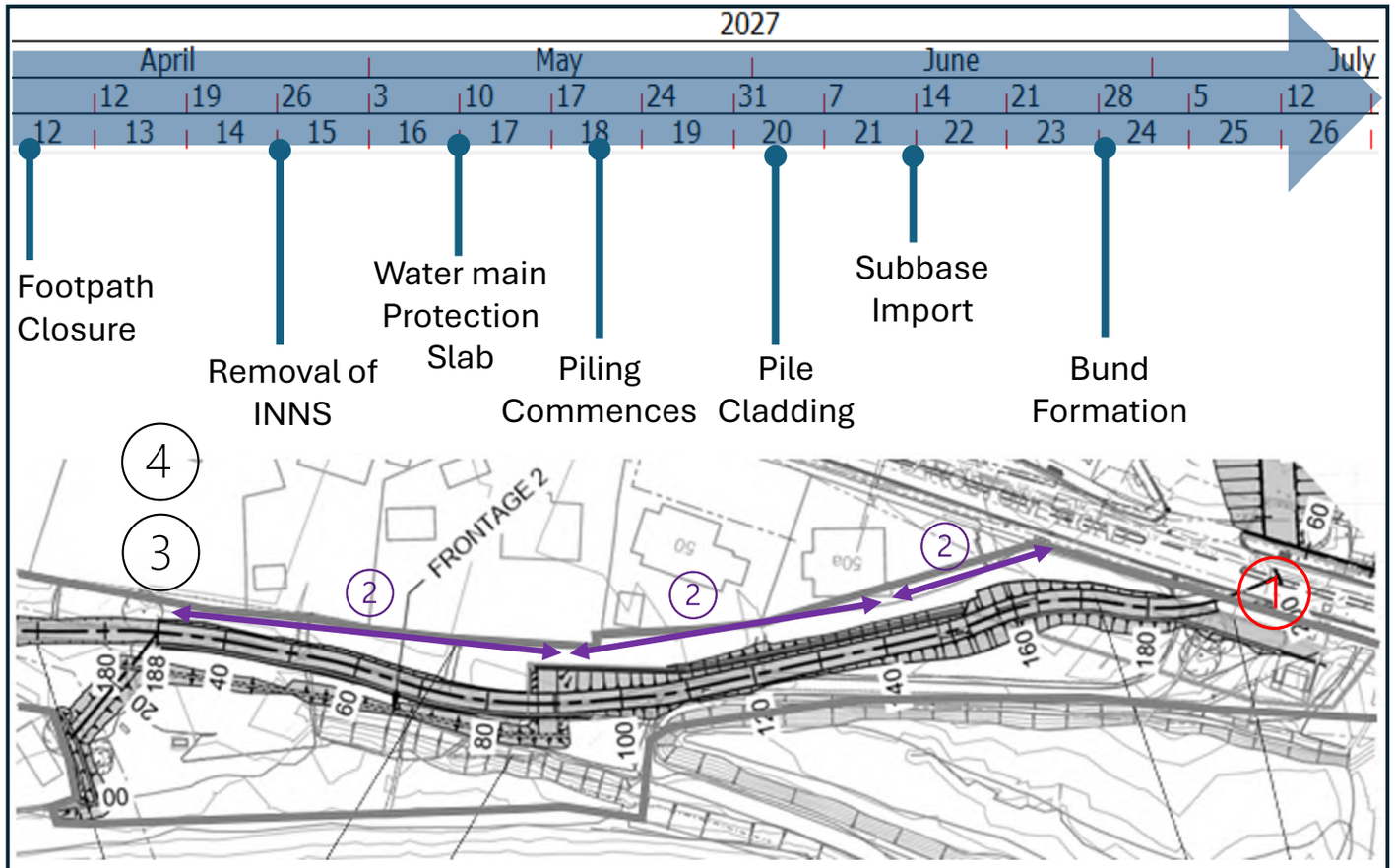
Disruption Control – adhering to BS5228
As part of our disruption control strategy we will only work with suppliers who provide **silenced exhausts** on the plant supplied; we acknowledge that in a contained area with residential properties even the smallest of plant can create a large amount of disruption, we believe that utilising exhaust silencers is the best way to avoid noise-based disruption alongside **reducing plant size**. In addition to this our site agents will ensure that vehicles are switched off rather than be left idling in periods of stoppage.

Work Frontage 2
Methodology
Weeks 12-26

Frontage Layout, Diversions and Key Plant

Key

1. Closure Point of Billy Path
2. Acoustic Barrier
3. Site Personnel Access Point
4. Plant & Material Access



Info

Works Entrance
Works access will be thorough Frontage 1A on the Billy Path North.

Security
Full coverage of the site and compounds will be obtained by setting up CCTV cameras with restricted vision to **protect residents' and The Sailing Clubs privacy**.

Diversions
The Solent Way public Right of Way and Footpath will be diverted via the A3023 footpath and Mill Lane

Acoustics
To protect the enjoyment of property owners on Mill Lane and Langstone Road that back onto Frontage 2 Acoustic Barriers will be installed to fencing.

Protection to RPZ's



Foreshore Silt Curtain



10t Dual View Dumper



21t Excavator and Side Grip Movax



Acoustic Barriers



Work Frontage 2
Technical Narrative

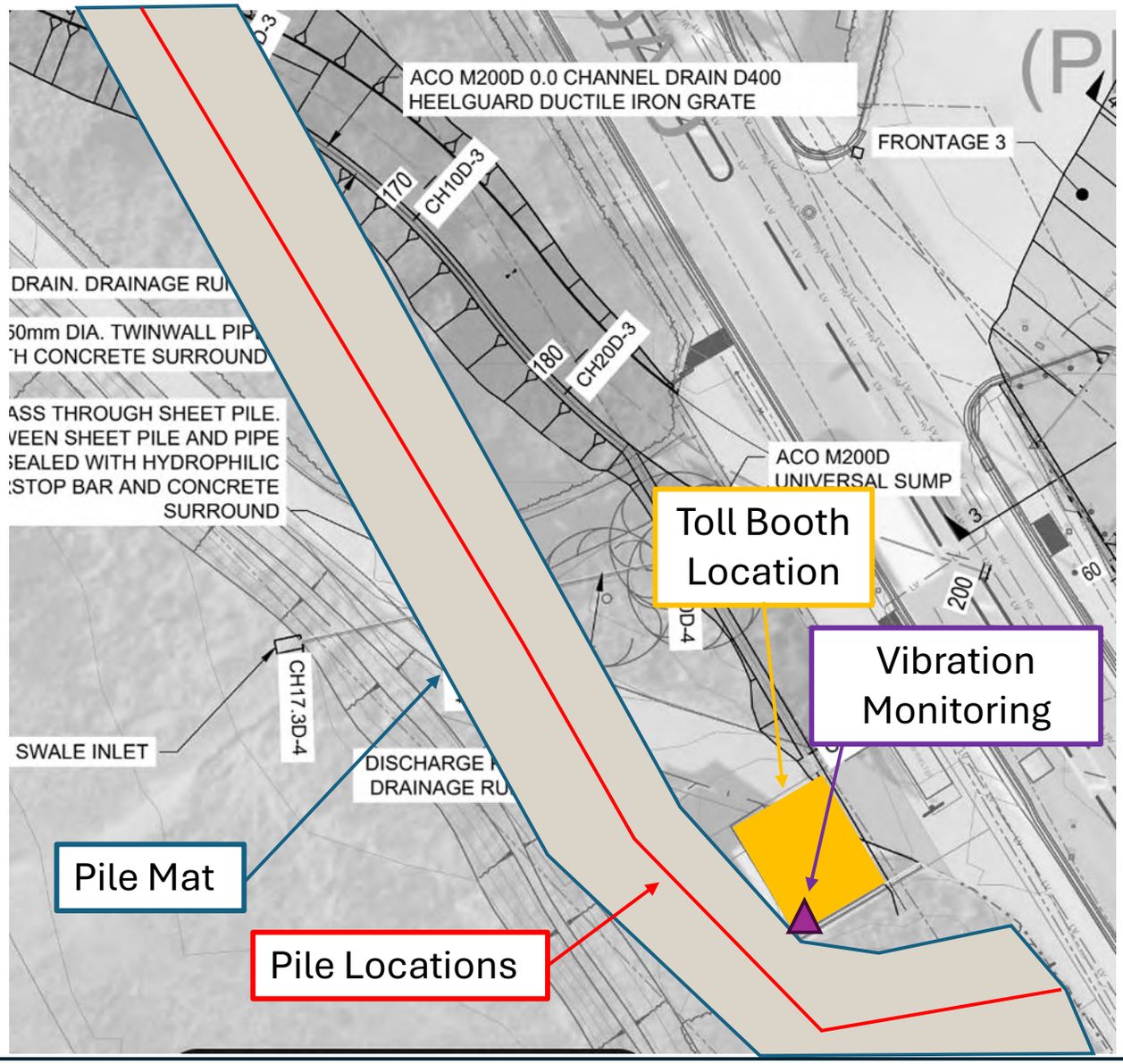
Enabling Works, Temporary Works and Disruption Management

Enabling Works

Vegetation clearance along Frontage 2 will be undertaken outside of the bird nesting season.
An **ecologist** will be appointed to undertake a **watching brief** throughout the vegetation removal to ensure compliance with all environmental requirements.

By progressing these works earlier, we significantly **reduce the risk of delays** associated with nesting birds, thereby lowering the overall risk profile for the commencement of construction activities.

To further support early clearance and maintain safe access for plant and materials, we will **coordinate the temporary lowering** of the existing **City Fibre** services and implement protective measures to the water main along the Solent Way. These interventions will ensure uninterrupted access to Frontage 2



Plant

Piling will be installed using a 21t excavator with **Movax vibratory side grip**, allowing for variable moment piling **reducing the impact** on local receptors.

Footway works will be constructed using a 13t 360-degree excavator, small ride on roller and dual view dumper utilising the methods and mitigations of Frontage 1A.

Reducing Disruption

The key element that we have identified as being the most disruptive is the piling due to both vibration and noise; we have worked with our piling subcontractor to produce a plan that's least disruptive utilising **small plant** that can complete the works in a timely manner as we acknowledge that **disruption** is not just measured in moments but also in **longevity**.



Temporary Works

Our Temporary Works and Protection measures for Frontage 2 revolve around safeguarding the existing water main and footpath services using permanent **precast slabs**, supplemented with additional Type 1 and **navvy mats** (see left) beneath piling equipment. A **silt curtain** will be installed along the foreshore to prevent sediment migration, and **acoustic barriers** will be erected to minimise disruption to nearby residents. Following installation, the piling mat will be repurposed as granular fill to support the bank-raising works.

Work Frontage 2
Technical Narrative

INNS Removal, Vibration Monitoring and Wall Formation

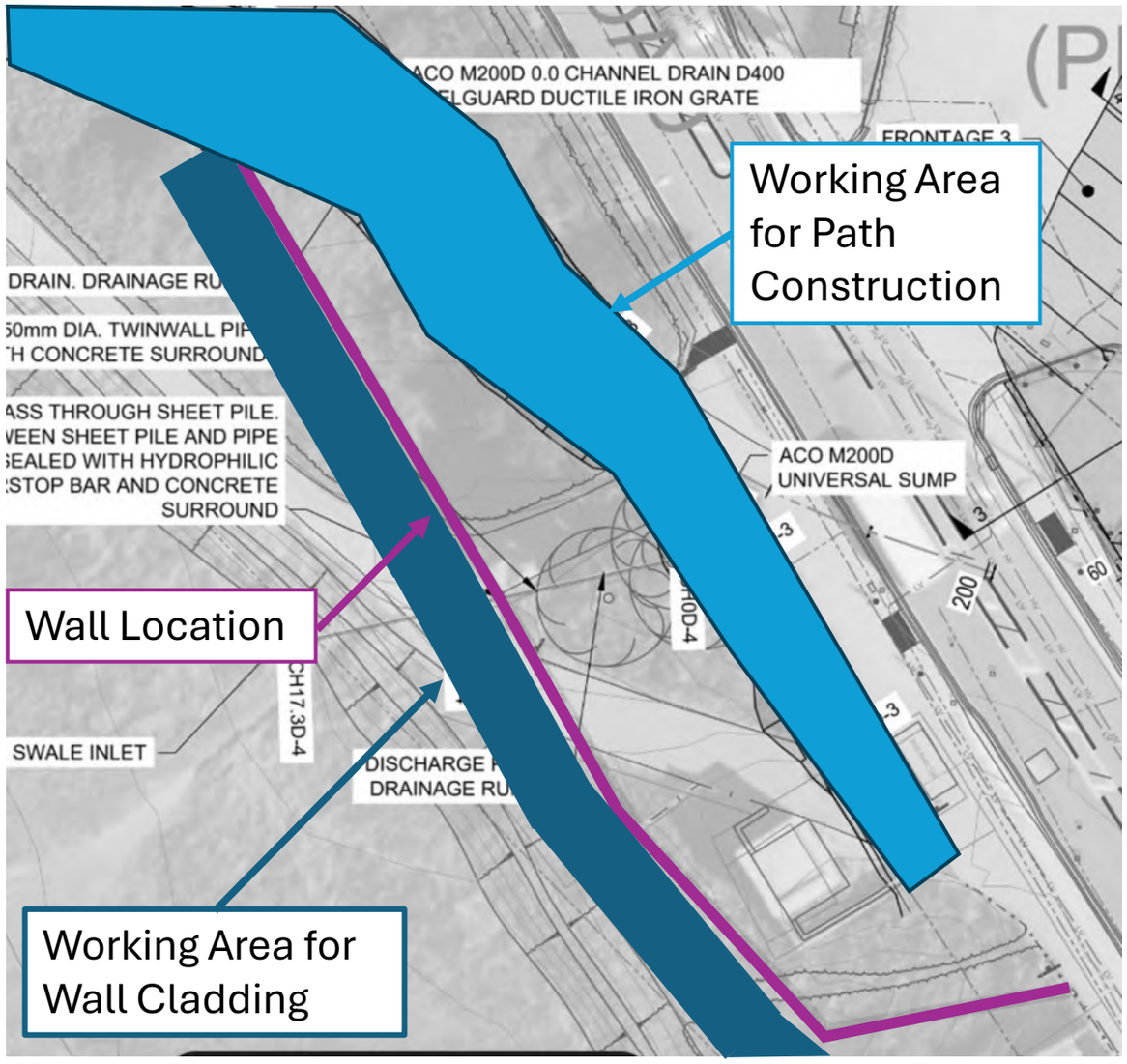
INNS Removal

Within Frontage 2 prior to the commencement of the main works, we will complete the removal of the Japanese Wild Rose (see below) by **hand digging and controlled removal** of the area to ensure full removal of the species.



Finishes and Sequence

Installation of the timber cladding will take place whilst the embankment and topping out of the footpath are completed.



Vibration Monitoring

During the piling works to the toll booth area additional vibration control measures will be installed to ensure that the existing structure is protected during the works; we will **install vibration monitoring stations** (see below) to the structure with an online dashboard (shared with client) linked through text message to the site agents' mobile phone, **providing alerts** when vibration levels exceed the agreed boundary.

If vibration levels exceed those stipulated; we will employ our **Stop, Think and Reassess** ethos to prevent further transfer of excessive vibration to the Toll Booth Structure.

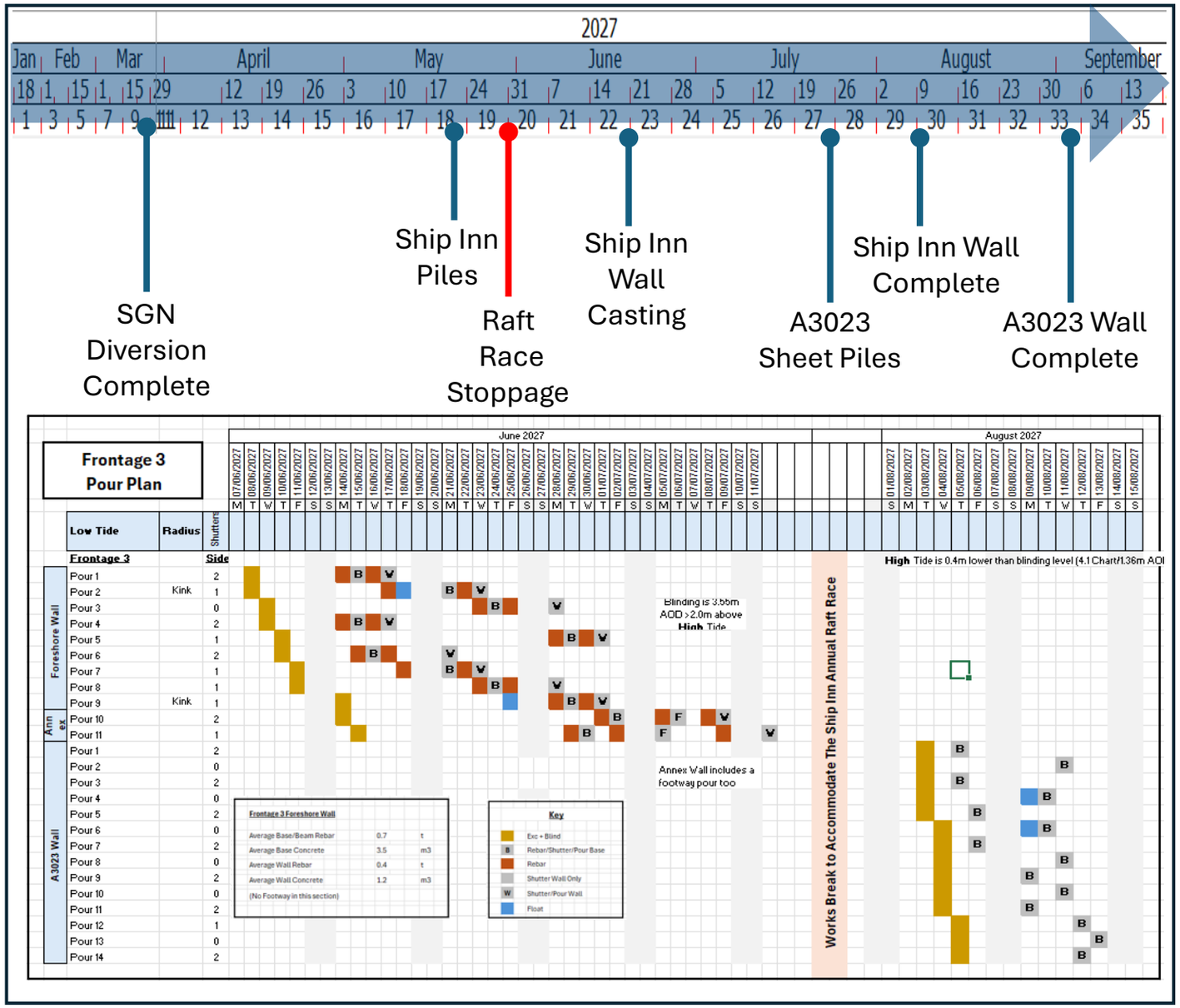


Work Frontage 3
Methodology
Weeks 1- 35

Frontage Access, Pour Plan and Key Plant

Key

	Exc + Blind
B	Rebar/Shutter/Pour Base
	Rebar
	Shutter Wall Only
W	Shutter/Pour Wall
	Float



Site Entrance

Annex Wall: Access off the A3023 through the pub carpark and foreshore via the slipway.

Car Park Raising: Access off the A3023.

A3023 Wall: Access off the A3023 with temporary traffic signals to allow vehicles to exit safely during the completion of works to the wall when working overhand from the Ship Inn carpark.

Temporary traffic signals to allow vehicles to exit safely.

Wheeled Excavator



Movax



13t Excavator



Silent Pile Press



Pre-Fabricated Cages



Work Frontage 3
Technical Narrative

Enabling Works, Temporary Works and Disruption Management

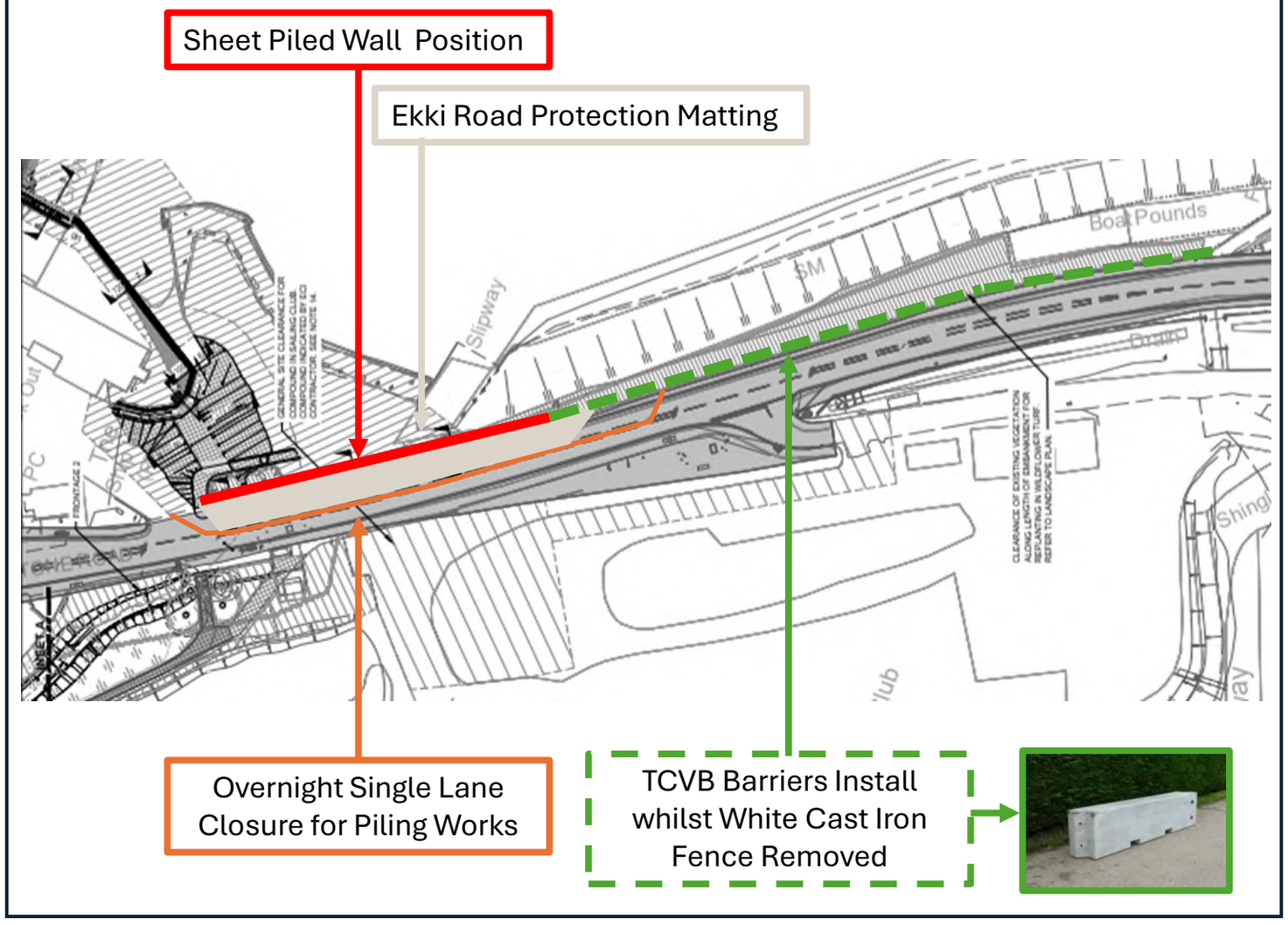
Enabling Works

Prior to the commencement of the main works to Frontage 3 in April 2027; we will coordinate the **SGN** Gas Diversion works.

Plant

Piling will be installed using a 21t excavator or wheeled excavator with Movax vibratory side grip , allowing for variable moment piling reducing the impact on local receptors.

Frontage works will be constructed using a 13t 360-degree excavator, small ride on roller and dual view dumper utilising the methods and mitigations of Frontage 1A and 2.





Reducing Disruption

Due to the remoteness of the work faces on Frontage 3 and the proximity to both residential and business stakeholders we will utilise a trailer mounted **110v battery pack to power small tools** on site. This will provide a significant **reduction** in noise as **compared with a generator**

Temporary Works

Protection to existing services, silt curtain to foreshore, **acoustic barrier with printed vista** to offset loss of views from the pub. **Ekki mats** (see left) may be needed on the carriageway. A temporary vehicle barrier will be erected when the parapet is removed.

We will utilise a **Geotextile reinforced access track** using beach material to access the Eastern section of the work fronts. Environmental protection will be via a Silt curtain to protect the estuary, an acoustic barrier with printed vista to offset loss of views from both properties and The Ship Inn, a dumpy sack berm to protect the works from wave action and all work site **plant will be trailer mounted** to further **safeguard from tidal currents**.

Work Frontage 3
Technical Narrative

Ship Inn and Annex Wall Formation

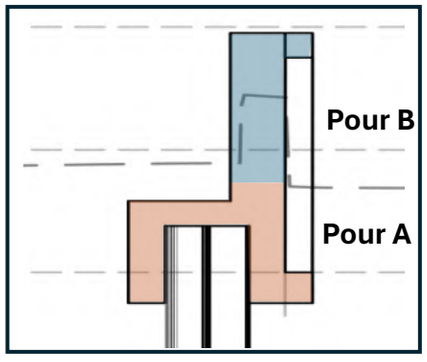
The Ship Inn

To **minimise noise and vibration** affecting The Ship Inn, the **piles** will be inserted using a **press**.

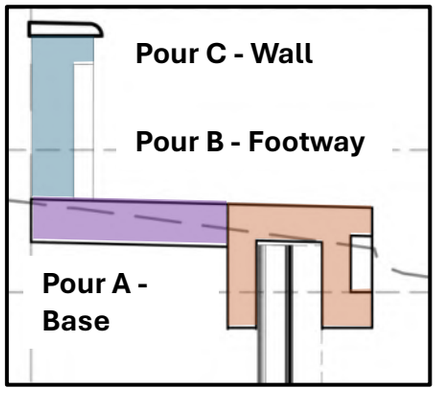
As for the Annex wall, the blinding for the capping beam/wall is above MHWL, however access is tidal, so shifts will be planned around tides.

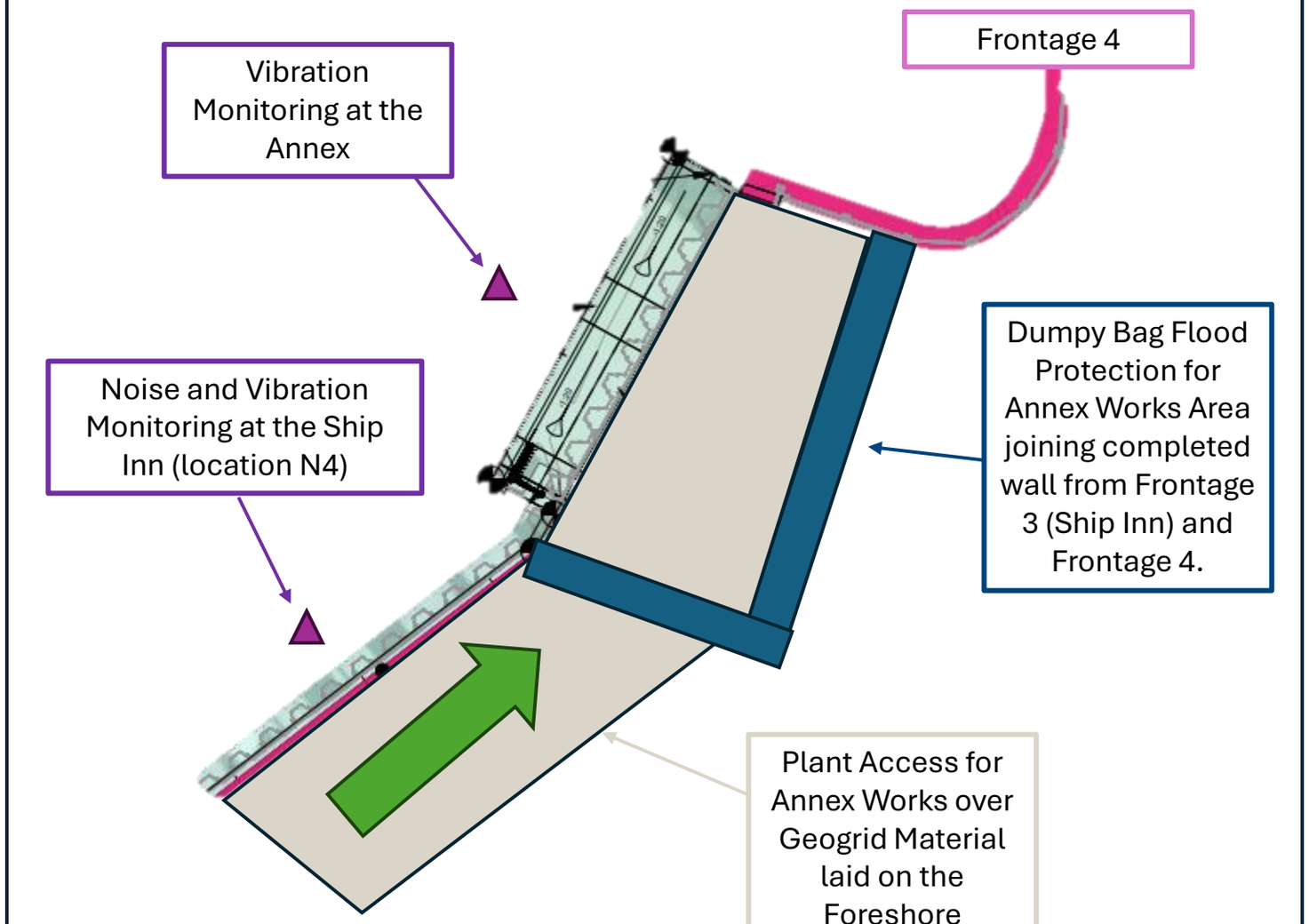
Steel will be fixed in situ then holding down bolt clusters positioned. Once the concrete has been placed and cured, our specialist supplier will fit the flood glass.

Ship Inn Wall Pour Plan



Annex Wall Pour Plan





Contingency Planning

We have formulated our pour plans for the Annex and Ship Inn Walls based on working around current known tidal patterns and have based our strategy on highly flexible and mobile plant to enable relocation to higher ground as needed.

Annex Wall

This work will commence when the frontage 4 walls are completed. Piles installed for the Annex Wall will be welded, allowing them to provide reaction for a pile-walking vibrationless silent press to push in the piles in the Ship Inn wall.

Excavated material will be placed in dumpy bags, used to protect the works.

Blinding for the new wall base is above MHWL, however access is tidal, so shifts will be planned around tides.

Steel will be fixed in situ due to the complicated connection to the piles and two base pours then two wall pours before cladding in brick

Work Frontage 4

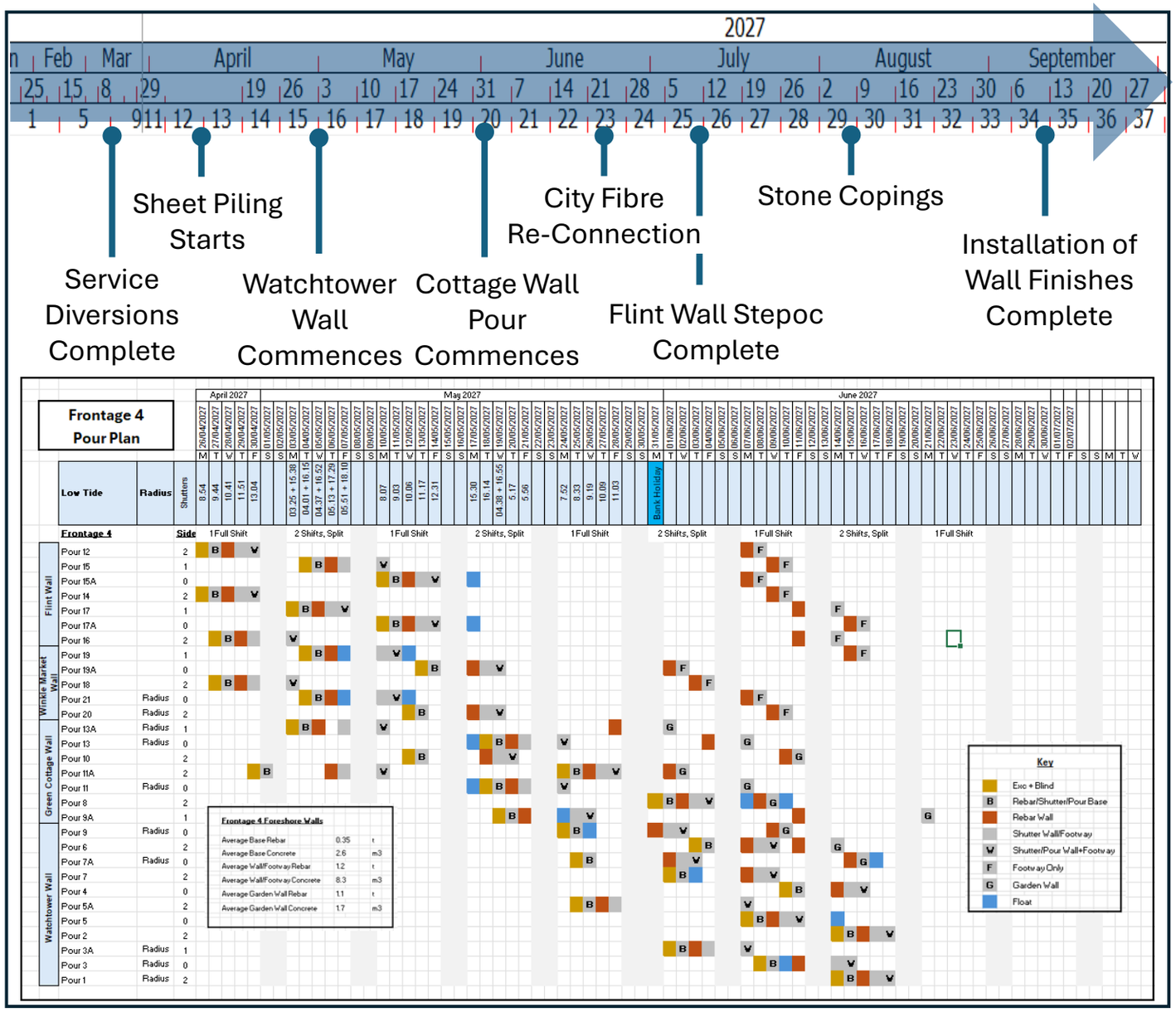
Methodology

Weeks 1- 37

Frontage Access, Pour Plan and Key Plant

Key

	Exc + Blind
B	Rebar/Shutter/Pour Base
	Rebar Wall
	Shutter Wall/Footway
W	Shutter/Pour Wall+Footway
F	Footway Only
G	Garden Wall
	Float



Key Information

Access will be from the A3023 through The Ship Inn carpark and foreshore or the High Street.

Security
Full coverage of the site and compounds will be obtained by setting up CCTV cameras with restricted vision to protect residents' privacy.

Key Plant: Piles will be installed using a 22t excavator with Movax vibratory side grip. A dual view dumper and trailer will be used to transport prefabricated rebar cages. A 35t excavator will be used to raise a half filled* concrete skip to pour the back walls. In place of noisy generators, all tools will be battery operated or 110v run from a large battery pack.

Concrete Pouring Skip*



Movax



35t Excavator



110 v Battery Pack



Foreshore Geogrid



Work Frontage 4
Technical Narrative

Construction of Flood Defence Walls

Main Works
Work will commence from Chainage 90 towards the slipway to allow work on the Royal Oak Wall in Frontage 5 to get clear of the slipway. Once this has been completed, we will work away from chainage 90 towards Frontage 3.

Piles will be installed with a Movax with an additional 0.5m length left above the base providing a stable surface to strut wall shutters off. While excavating the base, **trench sheets** will be pushed in at the rear of the excavation to **protect the existing defence from scour**.

Steel reinforcement will be **prefabricated** in the compound, delivered on a trailer, lifted in and the connection to the piles spliced. The base will be **poured with a deep kicker** (protecting existing defence) to allow the top of the wall and second base to be poured in one. An extra pour will be needed to accommodate the two LV electricity supply ducts. The trench sheets will be pulled out while the first pour is still wet.

Route 2: Access for Plant and Materials on Frontage 4 will initially be via Geogrid laid on the Foreshore working from Chainage 90 towards the Annex in Frontage 3
Used from late May 2027 onwards only - The Ship Inn unaffected before then.



Route 1: Access for Plant and Materials on Frontage 4 will initially be via Geogrid laid on the Foreshore working from Chainage 90 back towards the High Street Slipway
Not used after mid-July as Fr 5 and the eastern end of Fr 4 are complete.

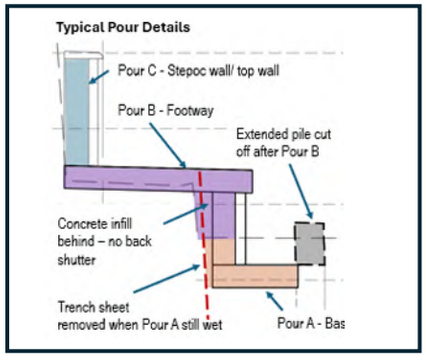
Wall Finishing

Concrete mixes used in the tidal zone will be **accelerated** to set within 90 minutes sufficiently before inundation by the incoming tide.

Protective **matting**, extended sheet **piles** and **dumpy bags** will be used to provide additional **resistance to erosion** of the surface of green concrete/ mortar.

Work to clad the walls will be carried out by specialist subcontractors.

Flood gates will be installed by our specialist supplier.



Work Frontage 4
Technical Narrative

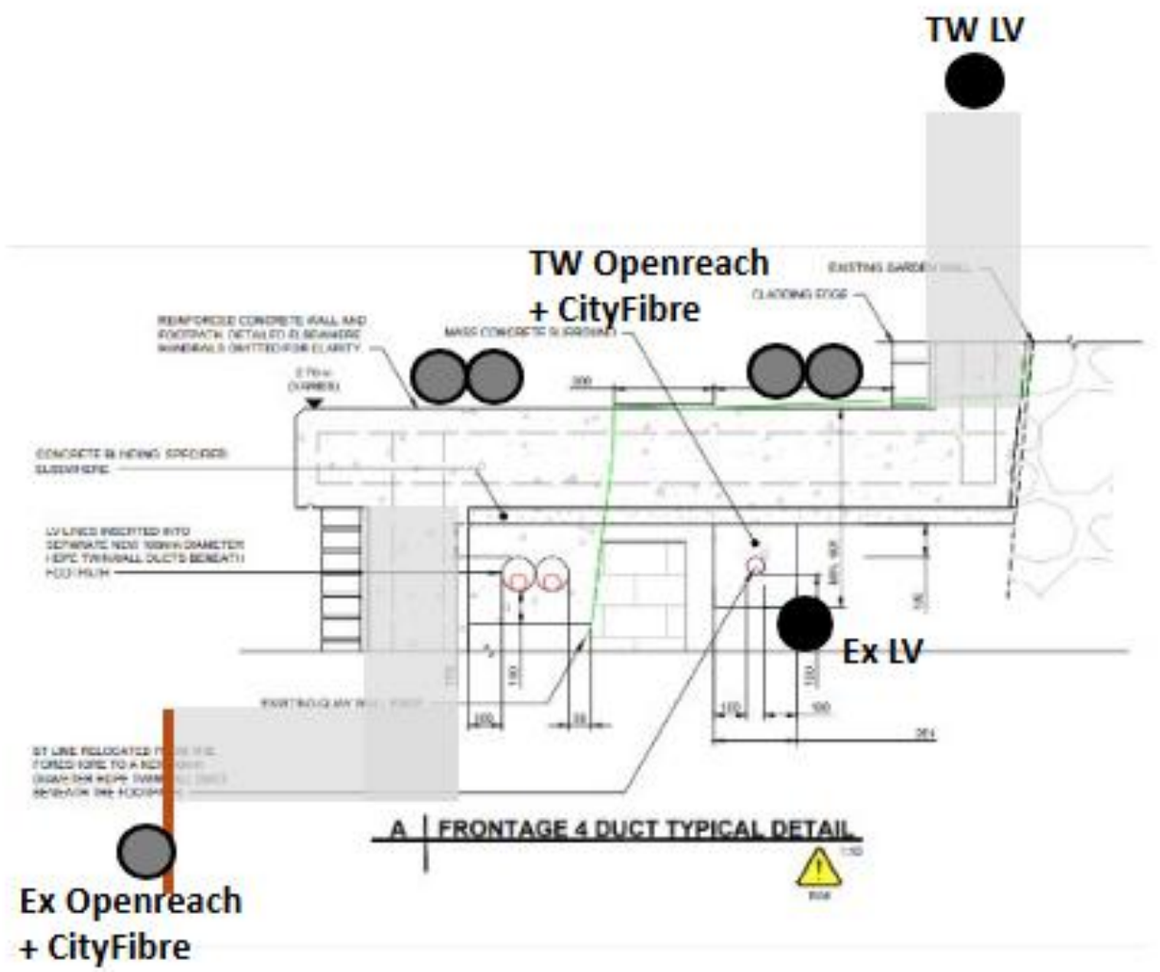
Service Diversions and Wall Finishes

Service Diversion

Service diversions will be completed in two distinct phases of work to enable service continuity.

The first section of work will be the diversion into temporary ducts to enable the new works to be completed; this will involve **the relocation of Openreach, Cityfibre and LV services** (see right); the Openreach and City Fibre will be completed in such a way to enable the ducts to be moved flexibly during the construction of the new concrete wall; the **temporary LV** will be located fully **outside the working area**.

Once the new ducts have been installed within the permanent works and the FRC cast we will complete the final diversion of the services into their final location.



Wall Finishing

Concrete mixes used in the tidal zone will be accelerated to set within 90 minutes sufficiently before inundation by the incoming tide. Protective matting, extended sheet piles and dumpy bags will be used to provide additional resistance to erosion of the surface of green concrete/ mortar.

Flood gates, balustrading and stop logs will be installed by specialist supplier.

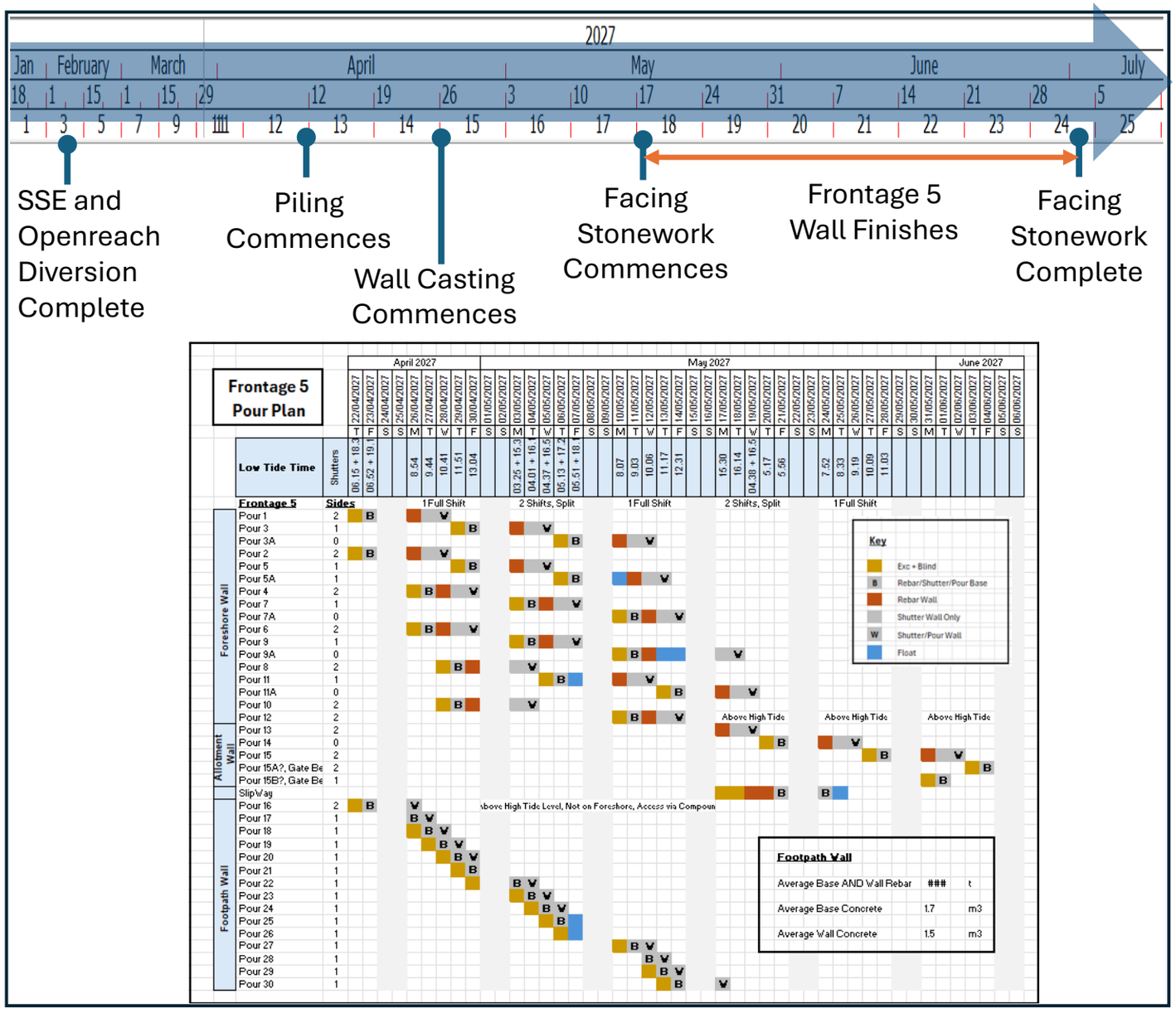
Wall finishing on Frontage 4 will be undertaken prior to installation of the coping stone.

Work Frontage 5
Methodology
Weeks 1- 26

Frontage Access, Pour Plan and Key Plant

Key

Key	
	Exc + Blind
B	Rebar/Shutter/Pour Base
	Rebar Wall
	Shutter Wall/Footway
W	Shutter/Pour Wall+Footway
F	Footway Only
G	Garden Wall
	Float



Key Information

Access for the Slipway frontage will be either from the A3023 through the Ship Inn car park and via the foreshore access track or from the high street. Access to Royal Oak, Nos 21 and 21A High St etc. maintained

Access will be via the high street and foreshore for the Allotment Wall.

Access from the compound for the Footpath Wall and earth bund.

Key Plant:
Sheet Piles will be installed using a 22t excavator.
A dual view dumper and trailer will be used to transport prefabricated rebar cages. Concrete will be placed using a concrete skip.

Cohesive fill will be placed using a sheepsfoot roller to achieve compaction. In place of noisy generators, all tools will either be battery operated or 110v run from a large battery pack.

Sheepfoot Roller



21t Excavator and Side Grip Movax



Dual View Dumper



Concrete Skip



Work Frontage 5
Technical Narrative
Royal Oak to Slip Way

Formation of Walls and Slipway

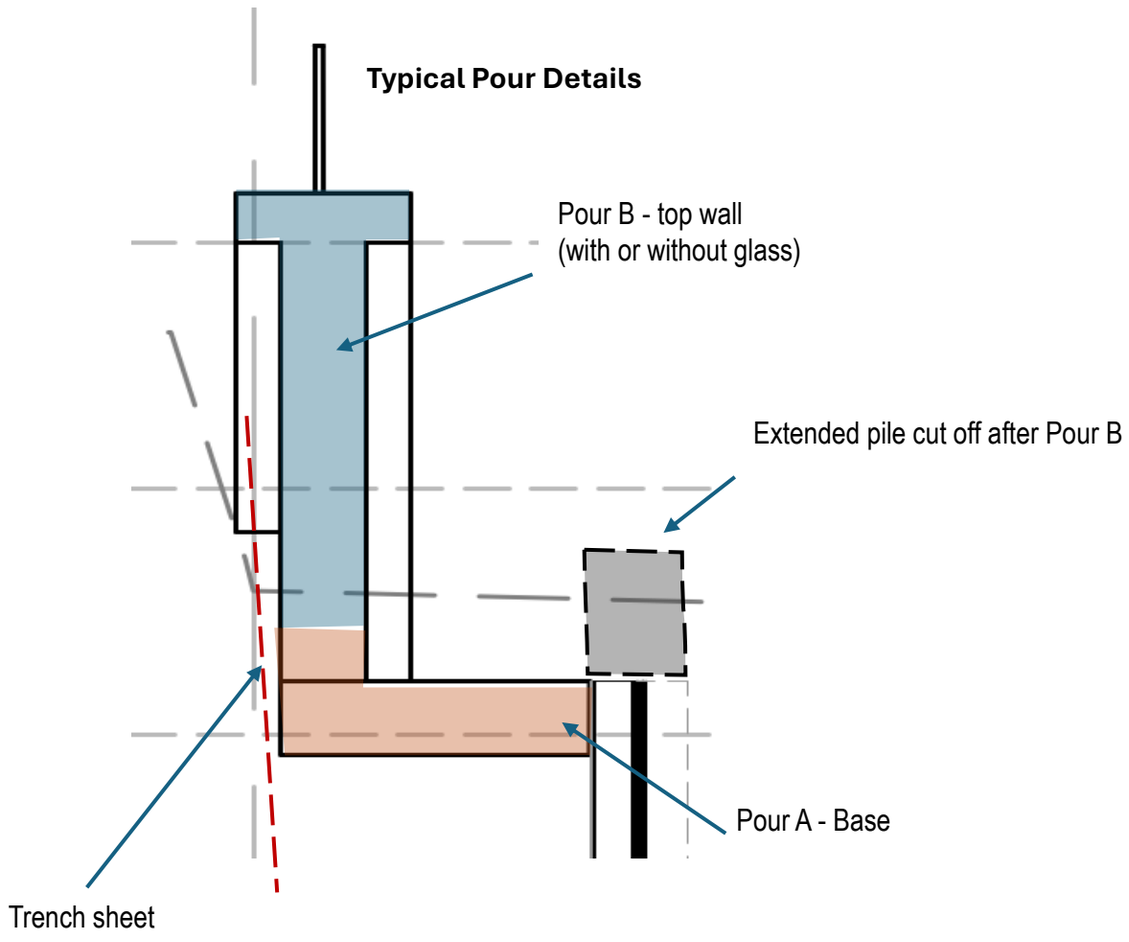
Main Works

Work will commence from the slipway working towards No. 21 Langstone High St. Piles will be installed with a Movax with an additional 0.5m length left above the base providing a stable surface to strut wall shutters off.

While excavating the base, trench sheets will be pushed in at the rear of the excavation to protect the existing wall from scour; **additional scour and flood protection** in the temporary state will be provided by the casting of a **deep kicker** as part of the base.

Steel reinforcement will be prefabricated in the yard, delivered on a trailer, lifted in and the connection to the piles spliced. The Wall will be cast with a deep kicker; this will improve overall buildability whilst also providing a secondary protection to the rear bank from tidal surges during construction.

The trench sheets will be pulled out while the first pour is still wet.



Slipway and Floodgates

Flood gates and glass on the Royal Oak wall will be installed by our specialist supplier.

At the slipway, advanced 'enabling-works' will deliver piling which will be buried until we construct the ramp and flood gate sill.

The slipway area will take approximately 2.5 weeks to construct with the last couple of days used to water test the flood gate seals.

Wall Formation

Work to clad the walls will be carried out by specialist subcontractors.

Concrete and mortar mixes used in the tidal zone will be accelerated to set sufficiently before inundation by the incoming tide. Protective matting will be used to provide additional resistance to erosion of the surface of green concrete/ mortar.

Work Frontage 5

Technical Narrative

Allotment , Footpath Wall and Bund

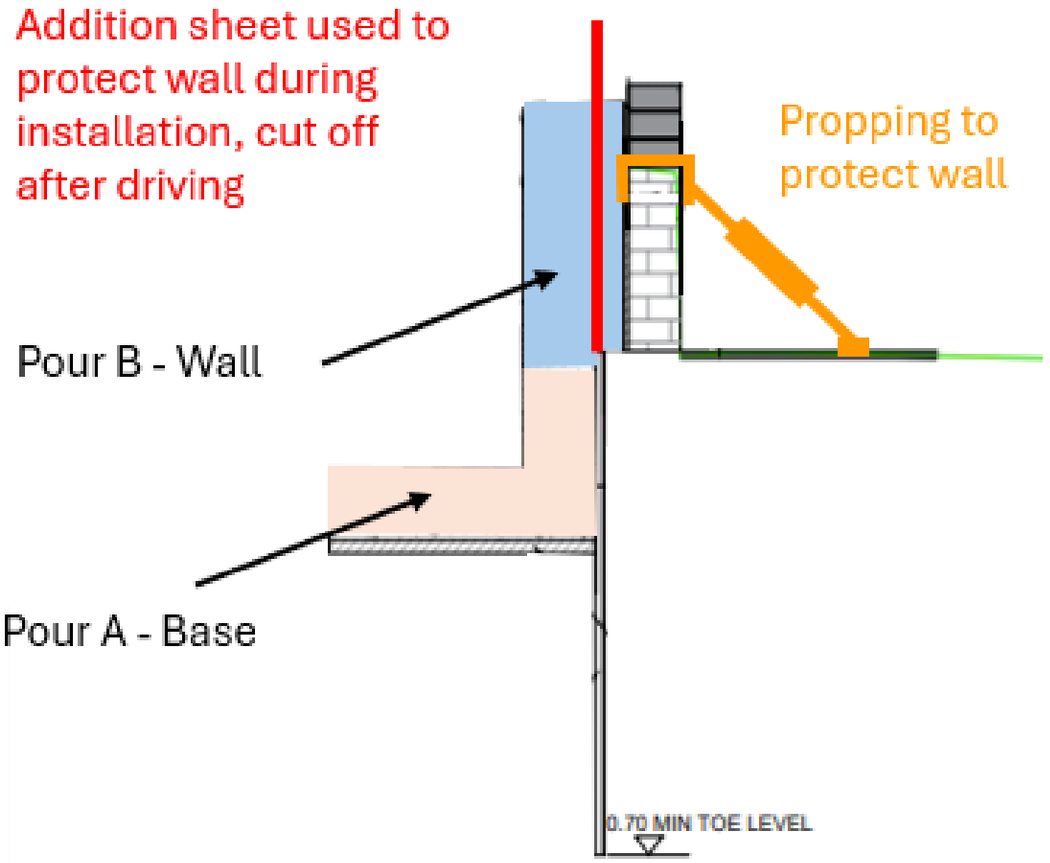
Wall and Bund Formation

Main Works

Work will commence with construction of the Allotment Wall.

Following site clearance, topsoil strip, and exploration for the wall foundation, trench sheets will be installed with additional length extending to the top of the existing wall to eliminate risk of hitting the wall with plant.

Push/pull props will reduce the risk of the wall falling into the excavation. Rebar will be tied in situ and the base and wall poured in two lifts. Each pour will be completed before the next section is started to ensure stability.



Bund Formation

The bund will be constructed as detailed using plant and materials delivered via the compound.

The anchor trench will be dug and filled with the compacted clay ready for the import of Type 1 and Topsoil.

Path Formation

As work progresses to the Footpath Wall, Type 1 will be trimmed to form the first base formation, then blinded. Steel will be fixed then the next base blinded. On the third day, a base will be poured. A rolling programme of blinding, base, wall will then progress out along the path completing the formation of this wall within 3 sections reducing the number of joints requiring waterproofing and improving project whole life value. The Gazebo, patio and shed will be reinstated as work is completed.

The setting out of glazed wall sections will be coordinated during the prefabrication of the reinforcement cages with a measured survey being completed following the final casting and curing of the wall to enable accurate manufacture of laser cut components.

Appendix B – Reptile Mitigation Strategy

Havant
BOROUGH COUNCIL

Coastal Partners

Langstone FCERM Scheme
Reptile Mitigation Strategy

October 2026

Project	Langstone FCERM Scheme
Title	Reptile Mitigation Strategy - FINAL
Reference	

Document History

Date	Revision	Prepared	Approved	Authorised	Notes
04/03/2024	0.1	Zoe Palmer	Ed Rowsell		Draft
19/06/2024	0.2	Ed Rowsell	Gavin Holder		Final
28/10/2026	1.0	Ed Rowsell	Nicola Reid		Discharge of Conditions/construction

Coastal Partners

Havant BOROUGH COUNCIL

Contents

1 Introduction 4
2 Site Background 4
2.1 Proposed Works 5
2.2 Reptile Survey Results 7
2.3 Legislation 9
3 Proposed Mitigation 10
3.1 Frontage 5 – Langstone FCERM Scheme 10
3.2 Frontage 2 – Langstone FCERM Scheme 11
3.3 Methods 13
3.3.1 Vegetation Management and Hand Capture 13
3.3.2 Destructive Search Method (if required) 14
4 Conclusion 16
5 References 16

1 Introduction

A Reptile Mitigation Strategy has been produced by Coastal Partners (CP) for the Langstone Flood and Coastal Erosion Risk Management (FCERM) Scheme (**Figure 1.1**). The Reptile Mitigation strategy is required as part of the planning application to demonstrate measures taken for work within potential reptile habitat during the construction of the proposed Langstone FCERM Scheme, to avoid harm to protected reptile species. This document will establish the principles and methods of a 'vegetation management, hand capture and reptile relocation programme', prior to the construction works. Any contractors engaged to undertake the construction work will be required to adhere to this strategy. (This is a live document and could change according to conditions on the ground; contractors should consult with CP on any deviation).

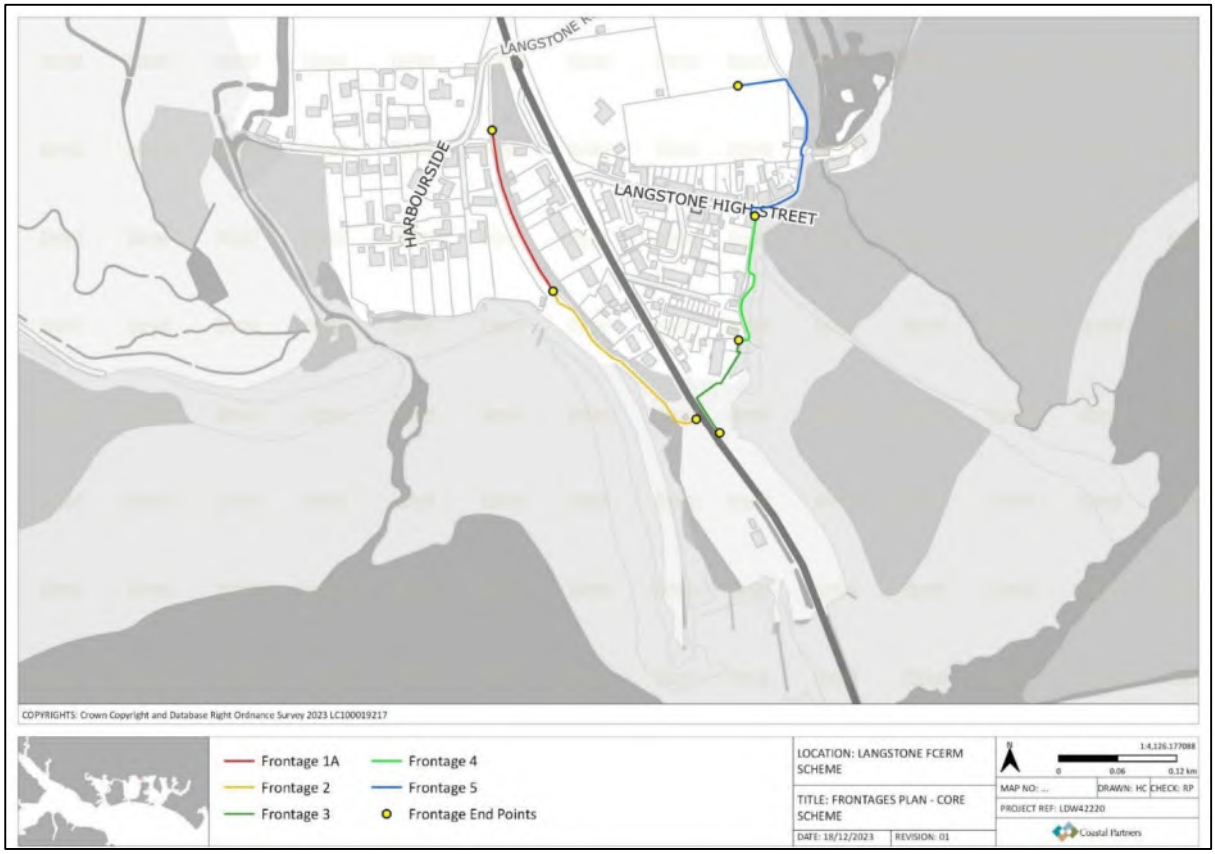


Figure 1.1 – Langstone FCERM Scheme Frontages plan.

2 Site Background

The site comprises a mixture of broadleaved and wet woodland, scrub, hedgerow, grassland and reedbed habitats. Saltmarsh and vegetated shingle habitats are located at the coastal margins and the harbour itself comprises of intertidal mudflat, littoral coarse sediment and shingle. There are areas of suitable reptile habitat within Frontage 2 (approximately 0.21ha), particularly within the scrub and improved grassland adjacent to the Billy Trail footpath which runs parallel to Langstone Road. Suitable reptile habitat (approximately 0.77ha) is also present within Frontage 5 (including the main compound area), particularly within the improved grassland, scrub and hedgerows within the Langstone Meadows.

2.1 Proposed Works

The proposed coastal defences consist of a mix of earth bunds, reinforced concrete sea walls and sheet pile walls, as described below.

- **Frontage 1A: Billy Line North.** The flood defence comprises of a raised earth embankment and follows the line of the existing Billy Line cycleway (a National Cycle Route 2 cycleway). The existing cycle path is to be upgraded to a new 3 metre wide shared path for pedestrians and cyclists which sits on top of the flood embankment.

- **Frontage 2: Billy Line South.** The design for Frontage 2 consists of a sheet-piled wall. Raised earth embankments are included where the defence alignment needs to cross existing utility pipes. The existing cycle path is to be upgraded to a new 3 metre wide shared path for pedestrians and cyclists which sits adjacent to the sheet-piled wall. Frontage 2 ties in with Frontage 1A and the existing higher levels on the A3023 road.

- **Frontage 3: A3023 road to 9 Coastguard Cottages (The Look Out).** Frontage 3 consists of a continuous flood defence that largely comprises of four flood defence structures. These structures include the A3023 flood wall, Ship Inn car park raised earth bund, Ship Inn flood wall and Ship Inn Annex flood wall. A flood gate is also to be provided between the Ship Inn and the Ship Inn Annex flood walls.

- **Frontage 4: The Look Out to No. 24 Langstone High Street (the Winklemarket).** Frontage 4 consists of new reinforced concrete flood walls in front of the existing garden walls that run along the frontage. The existing footpath is to be upgraded to a new 1.5 metre wide footpath through the construction of a new quay wall, to improve user accessibility of the route. One flood gate (at Green Cottage) and one demountable flood barrier (at the pedestrian access adjacent to the Watch Tower) will be provided to ensure robust continuity of the defence.

- **Frontage 5: Langstone High Street to the field north of the Royal Oak.** Frontage 5 consists of a continuous flood defence that largely comprises of five structures. These structures include the High Street flood gates, the Royal Oak flood wall, the allotment flood wall, the Footpath flood wall that runs west of the Mill Pond, and an earth embankment in the field north of the Royal Oak. Demountable flood barriers will be provided between the section transitions and flood gates will be provided at No.21 High Street.

A main site compound will be set up that will remain in situ throughout the construction works, located in the fields to the north of the Royal Oak (Langstone Meadows). One satellite compound will also be required –located in the Ship Inn car park. A very small welfare set-up will be required for Frontages 1A and 2, which will move with the construction due to the access restrictions.

In Frontage 2 approximately 0.28ha of grassland, scrub, and woodland will need to be removed under the footprint of and adjacent to the raised earth embankment. In Frontage 5 approximately 1.6 ha of grassland, hedgerow, scrub and woodland habitat will be removed under the footprint and adjacent to the flood wall and earth embankment, and within the main compound location and associated haul route (**Figure 2.1**). Re-planting along the new embankments is proposed to enable the work to blend in with the existing environment and to support a range of species including reptiles.

The construction works are expected to commence in Spring 2027 (subject to approvals) and will take approximately one year to complete. The main construction works will take place between April and September to avoid the overwintering bird season.



Figure 2.1: Proposed vegetation clearance areas for Frontage 2 and Frontage 5 of the Langstone FCERM Scheme.

2.2 Reptile Survey Results

A presence / likely absence survey was undertaken in accordance with the Herpetofauna Groups of Britain and Ireland (HGBI) (1998) guidelines and Natural England's 'Reptiles: surveys and mitigation for development projects' guidance (Natural England, 2015). Five transects (A-E) (**Figure 2.2**) were established through areas of potentially suitable reptile habitat within the Frontage 2 site. The transects were surveyed with a total of 53 Artificial Cover Objects (ACOs), consisting of 500mm x 500mm bitumen felt squares. The ACOs were placed approximately every 10 - 20m along the transects and were left to settle in for two weeks following placement. Each transect received nine site visits during suitable conditions between 16th April and 8th June 2021; and records of any reptiles basking on top or sheltering underneath the ACOs were made. In addition, during survey transects, a methodical visual search of natural basking locations was undertaken to gain further observations of reptiles.

A second survey was undertaken in 2022 to account for an additional haul route and compound location within the Frontage 5 area. Three transects (A-C) (**Figure 2.3**) were established through areas of potentially suitable reptile habitat. The transects were surveyed with a total of 41 ACOs that were placed approximately every 10 - 20m along the transects and left to settle in for two weeks following placement. Each transect received seven site visits during suitable conditions between 5th and 26th of April 2022; and records of any reptiles basking on top or sheltering underneath the ACOs were made. The population size was calculated based on the maximum number of adults seen during each survey visit as detailed in the Froglife Advice sheet 10 (Froglife,1999).

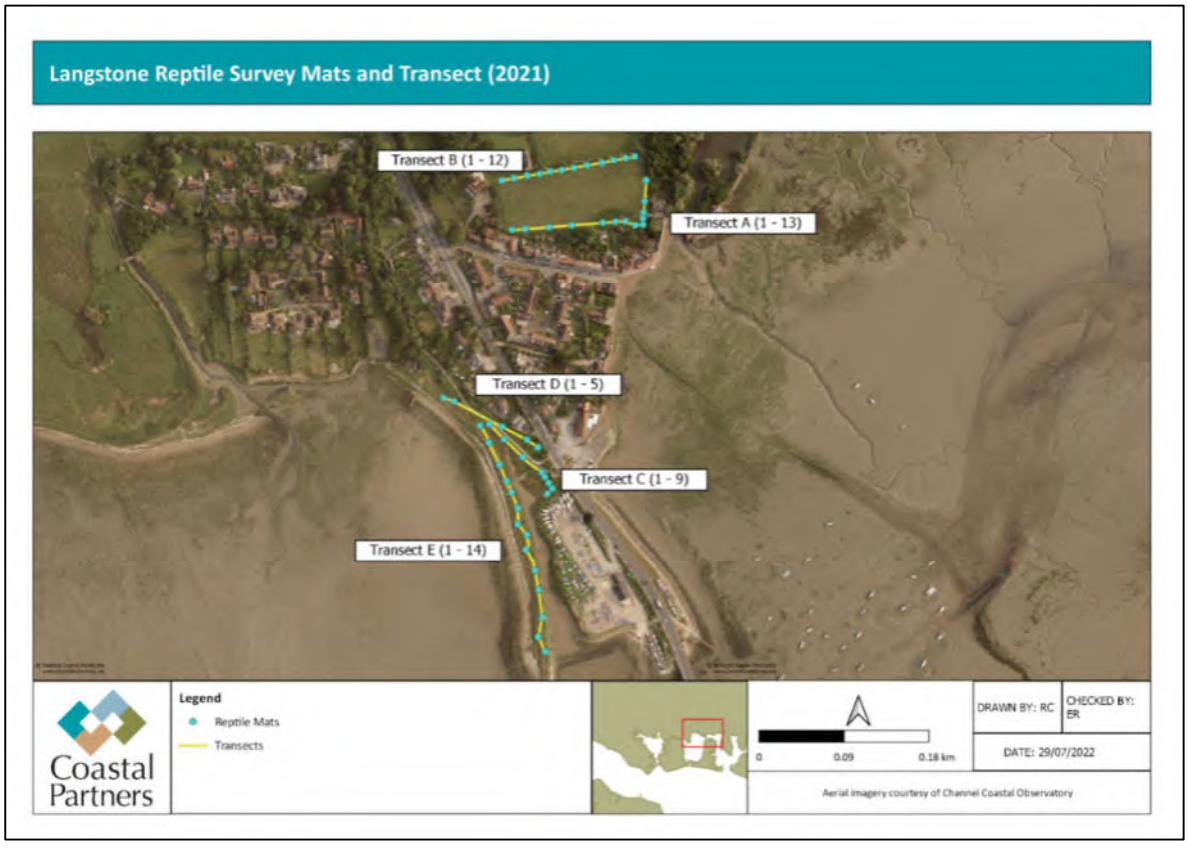


Figure 2.2 Langstone reptile survey (2021) transects A-E showing position of ACOs.

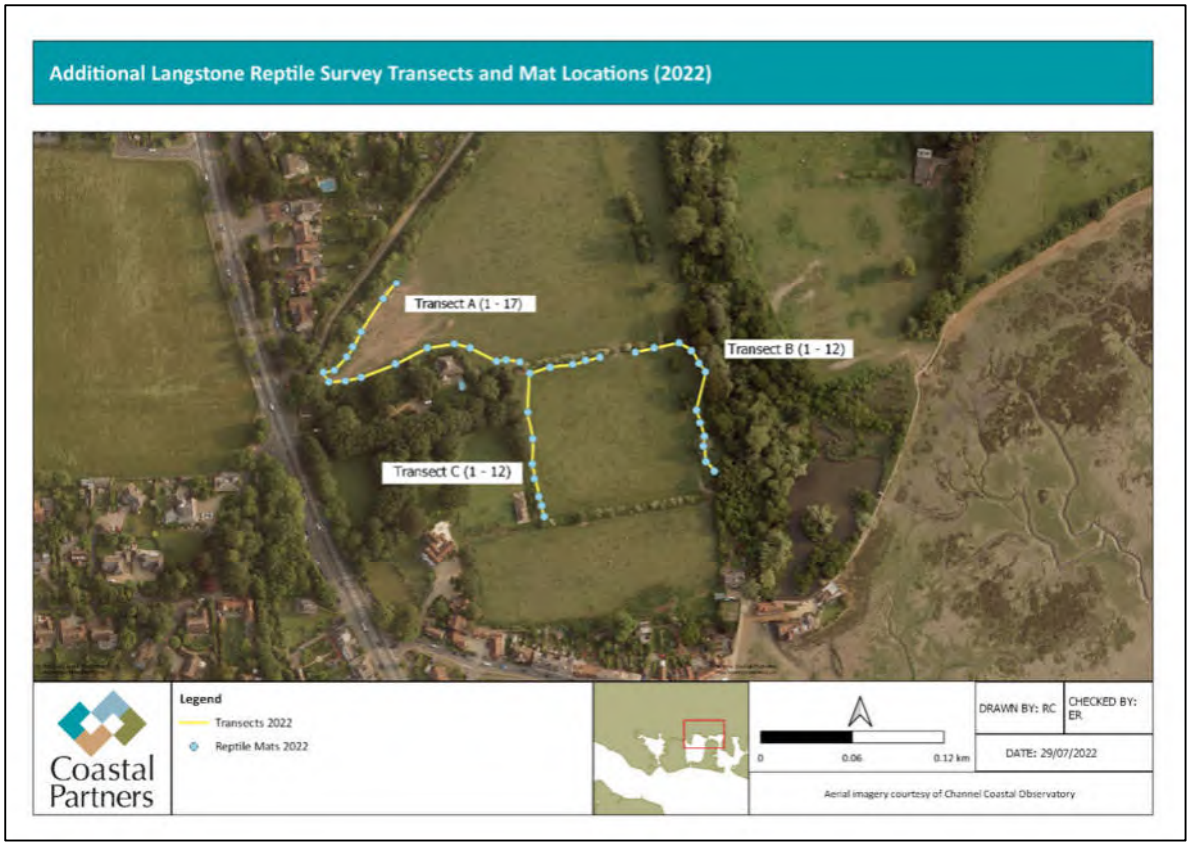


Figure 2.3 Langstone reptile survey (2022) transects A-E showing position of ACOs.

During the surveys, two reptile species, common lizard (*Zootoca vivipara*) and slow worm (*Anguis* fragilis) were recorded along transects B-E (2021) and transect A (2022) (**Figure 2.4**). Peak adult survey counts were one common lizard (on 16.04.21, 23.04.21 and 27.04.21) and thirteen slow worms (on 27.05.21) for both areas. Using the Froglife Advice sheet 10 (Froglife, 1999) criteria, these results indicate that the location has a 'good' population of slow worm and a 'low' population of common lizard overall.

When looking at the two frontages separately where suitable reptile habitat is found, the survey results are as follows.

- Frontage 2 had a peak survey count of eleven adult slow worms and one adult common lizard, indicating that Frontage 2 has a medium population of slow worms and a low population of common lizards.
- Frontage 5 had a peak survey count of two adult slow worms, indicating that Frontage 5 has a low population of slow worms.

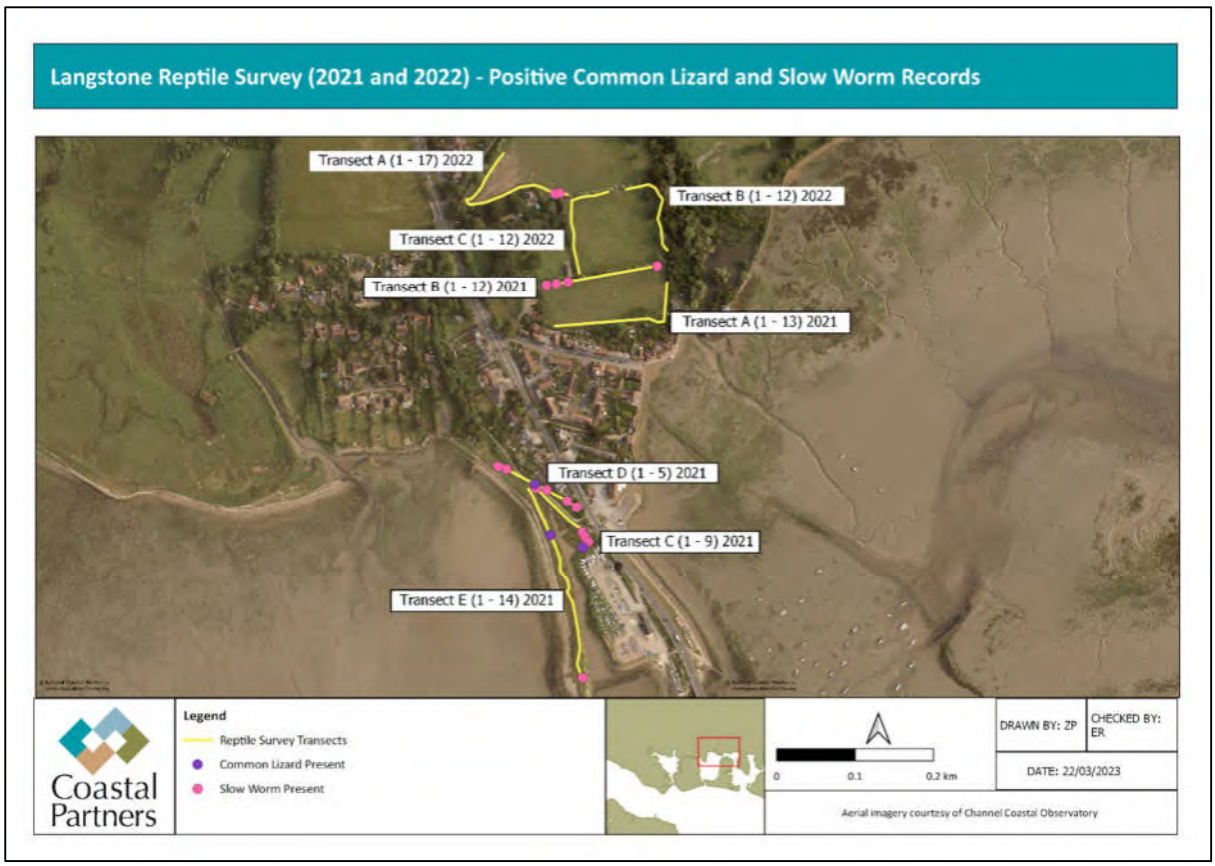


Figure 2.4 Positive records of slow worm (*Anguis fragilis*) and common lizard (*Zootoca vivipara*) on all transect routes during 2021 and 2022 reptile surveys.

2.3 Legislation

All reptiles are protected under the Wildlife and Countryside Act 1981 (as amended), making it illegal to intentionally or recklessly kill or injure a common reptile. Rare reptiles, which include Smooth Snake (*Coronella austriaca)* and Sand Lizard (*Lacerta agilis*) also receive legal protection under the Conservation of Habitats and Species Regulations 2017 (as amended). It would be an offence to deliberately injure, kill, capture or disturb a rare reptile, or to damage or obstruct any place used for shelter or protection. Rare reptiles may only be disturbed by licensed ecologists.

All reptile species are species of principle importance under the Natural Environment Rural Communities (NERC) Act 2006, and local authorities and other public bodies have a legal duty to take their conservation into account. Because of this they are a material consideration in the planning process.

3 Proposed Mitigation

Vegetation clearance, construction activities and operations (particularly involving plant and other machinery) have the potential to impact reptiles within Frontage 2 and Frontage 5. The following mitigation measures will be applied to minimise the risk of the proposed works on killing or injuring protected reptile species.

A composite and phased approach will be undertaken on site in order to achieve programme objectives whilst complying with current guidelines, best practice and UK legislation. A range of techniques will be used to de-risk all suitable habitat for reptiles within the Frontage boundaries and reptiles found will be captured and translocated to the designated safe receptor areas. The receptor areas (Figure 3.1) contain approximately 0.85ha of mixed grassland / meadow / light scrub habitat. It is estimated that there is around 1.6ha of potential reptile habitat in the vicinity, of which 0.6ha is within the scheme boundary.

The entire process will be undertaken or supervised by suitably qualified and experienced ecologists. The optimal time to carry out the translocation is during the reptile active season (March to September). Due to the low population located in Frontage 5 and the connectivity of the habitat a different approach is suggested for this area as opposed to frontage 2.

3.1 Frontage 5 – Langstone FCERM Scheme

Due to the low reptile population and the good connectivity of areas of reptile habitat in this frontage, the main method of mitigation will be vegetation management, undertaken to encourage reptiles to move into adjacent habitats. Reptile fencing and/or close-cropped strips will be located to stop recolonisation of de-risked areas from adjacent suitable habitat that will act as reptile safe areas throughout the works see (**Figure 3.1**). These reptile safe sites will not be impacted by the construction works. The following measures will be taken during the vegetation management and reptile de-risking:

- During the active season (March to October - subject to suitable weather conditions), vegetation management (staged cutting down to ground level) will be used to encourage reptiles to move into safe zones.
- The cutting programme will aim to work in a directional manner cutting progressively toward the nearest reptile safe area.
- Once it is considered that all reptiles will have moved into safe zones, all safe zones will be constrained by close crop mowing along the zone boundaries and/or reptile fenced to best practice standards.
- Following vegetation management hand capture under Alternative Cover Objects (ACO) will be undertaken, to demonstrate that the area is clear of reptiles. Any captured animals will be translocated into the nearest reptile safe area. Capture will be undertaken five days a week, once per day in suitable weather conditions. Capture operations will continue for a minimum of 15 days and then until no animals have been seen or captured for five consecutive days with suitable weather conditions.
- As most of the habitat is alongside habitats that will be retained and/or are with tree protection zones, no destructive search will be carried out following vegetation management.
- Close cropping will continue around the Frontage boundaries and reptile fencing will be placed around the Frontage boundaries where necessary (attached to the heras fencing) to ensure reptiles do not return to the site during the construction works. Vegetation will be kept short within the Frontage boundaries to further deter reptiles during the construction works. The reptile fencing will be checked regularly to ensure it is in good working order.

For further details on methodologies for these stages see **section 3.3.1**.

3.2 Frontage 2 – Langstone FCERM Scheme

Vegetation management and in situ reptile translocation within the Frontage boundaries is planned for Frontage 2. Reptile fencing and/or close-cropped strips will be located to stop recolonisation of de-risked areas from adjacent suitable habitat that will act as reptile safe areas throughout the works see (**Figure 3.1**). These reptile safe sites will not be impacted by the construction works. The following measures will be taken during the vegetation management and reptile de-risking:

- During the active season (March to October - subject to suitable weather conditions), vegetation management (staged cutting down to ground level) will be used to encourage reptiles to move into safe zones and/or where that is not feasible, into focus areas.
- The cutting programme will aim to work in a directional manner cutting progressively toward the nearest reptile safe area.
- Once it is considered that all reptiles will have moved into safe zones, all safe zones will be constrained by close crop mowing along the zone boundaries and/or reptile fenced to best practice standards.
- Following vegetation management, hand capture under Alternative Cover Objects (ACO) will be undertaken, to demonstrate that the area is clear of reptiles. Any captured animals will be translocated into the nearest reptile safe area. Capture will be undertaken five days a week, once per day in suitable weather conditions. Capture operations will continue for a minimum of 30 days and then until no animals have been seen or captured for five consecutive days with suitable weather conditions.
- If considered necessary, e.g. in areas where capture is difficult, a destructive search will be carried out This will follow best practice procedures presented and use two suitably qualified and experienced ecologists observing/checking and capturing any reptiles and covering both the excavation and the deposition areas.
- Close cropping will continue around the Frontage boundaries and reptile fencing will be placed around the Frontage boundaries where necessary to ensure reptiles do not return to the site during the construction works. Vegetation will be kept short within the Frontage boundaries to further deter reptiles from recolonisation during the construction works. The reptile fencing will be checked regularly to ensure it is in good working order.

For further details on methodologies for these stages see **section 3.3.1** and destructive search at **section 3.3.2.**



Figure 3.1: Langstone FCERM Scheme reptile mitigation areas.

3.3 Methods

3.3.1 Vegetation Management and Hand Capture

Step 1 - Vegetation management, to encourage reptiles into safe zones and to support hand capture effort into easy to capture focus areas.

- Focus areas (frontage 2 only) will be identified and demarcated before vegetation clearance commences.
- The ecologist will give a tool box talk to the vegetation clearance operator / contractor, including:
    - A brief introduction to the reptile species which potentially may be discovered on the site.
    - Working methods to be employed and permitted equipment types.
- Soft and low woody vegetation will be cleared to a minimum height of 20cm from ground level by skilled operators supervised by a suitably qualified and experienced ecologist using; tractor mounted side arm flail, brushcutters, chainsaws or similar machinery. At no time will tracked or wheeled vehicles track across areas of suitable habitat. All arisings to be removed from site.
- After 24 hours. Soft and low woody vegetation will be cleared to a minimum height of 10cm from ground level by skilled operators supervised by a suitably qualified and experienced ecologists using; tractor mounted side arm flail, brushcutters, chainsaws or similar machinery. At no time will tracked or wheeled vehicles track across areas of suitable habitat. All arisings to be removed from site.
- After a further 24 hours. Soft and low woody vegetation will be cut to the lowest height possible by skilled operators and maintained at this height throughout the active season.
- A hand search by ecologists will be undertaken of the cleared areas, looking under rocks and cut vegetation in search of reptiles.
- This process will be supervised by ecologists and hand capture visits will be continued throughout this period.

Step 2 - Once ecologists are satisfied that all reptiles that will move, have moved into safe zones and focus areas, the cleared areas will be close cropped mowed and/or reptile fenced to contain and protect reptile safe areas and avoid re-colonisation of work areas by reptiles.

- Close cropping will continue around the safe zone boundaries and reptile fencing conforming to good practice guidance will be erected completely surrounding the safe zones and if required, around any boundaries of the working area adjacent or near any suitable reptile habitat (see **figure 3.1**)
- Fencing will be checked daily and will be repaired immediately if found to be damaged.
- Hand capture will continue under ACO's and if considered suitable bottle traps. Suitably qualified and experienced ecologists will visit once per day five days per week initially for 15 days (in Frontage 5) and 30 days (in Frontage 2).
- Any reptiles encountered will be captured by hand and either placed into a large container filled with soft vegetation or a soft cloth bag, before being transported to the designated demarcated safe zones within the site boundary.
- All captures or observations will be recorded in a log, with species and if possible, age class and sex.
- Hand capture will continue if there have been observations in the final five days of this minimum period, until there has been no captures or observations of reptiles for five

consecutive visits in suitable weather conditions. Once this scenario is reached it will be considered that the site has been successfully cleared of reptiles.

Step 3 - Review and look at options if site cannot be considered successfully cleared of reptiles.

- If the site has not been successfully cleared consider options below;
    - Continue hand capture if suitable weather and it is felt the hand capture is likely to achieve clearance.
    - Consider undertaking destructive search (not feasible for frontage 5), if it is considered reptile numbers are now very low and suitable weather conditions are forecast over the following weeks, this option will be favoured.
    - Consider delaying works to enable continued translocation the following Spring for Frontage 5 or the following Autumn for Frontage 2; if reptiles are still being regularly encountered and/or weather conditions are considered likely to cause reptiles to enter hibernation, then this option will be favoured.

3.3.2 Destructive Search Method (if required)

Should a destructive search be required to confirm successful clearance;

- Once all other steps above undertaken. A skilled operator using a 360˚ excavator with a large toothed bucket will remove any remaining vegetation and the topsoil to a depth of approximately 100mm, under an ecological watching brief. (A large toothed bucket should be used on the excavator as it is less likely to cause injury to reptiles compared to a smaller toothed or untoothed bucket, and will be more effective at clearing large areas).
- No areas of suitable habitat will be entered, tracked over, spoil placed on or excavated until getting confirmed clearance by the ecologists undertaking the watching brief.
- The removed topsoil and debris will be checked for reptiles by an ecologist.
- Any reptiles found will be recorded and either placed into a large container filled with vegetation or a soft cloth bag, before being transported to the designated reptile safe area (see **figure 3.1**).
- All captures or observations will be recorded in a log, with species and if possible, age class and sex.

3.3.3 Additional Dormant Season Method for Dense Scrub Removal

In areas of dense scrub where vegetation clearance is required during the reptile hibernation period (typically November to February), the standard vegetation management approach described above is unlikely to be effective because reptiles will not actively disperse from disturbed habitat. Furthermore, the extent and density of scrub means that clearance by hand or using conventional phased vegetation management techniques is not reasonably practicable.

A carefully controlled staged scrub removal process will therefore be undertaken under ecological supervision to identify and assess any potential reptile hibernation features before ground disturbance occurs. This approach is considered appropriate given the low reptile population recorded within the affected area.

The following method will be applied under the supervision of a suitably qualified and experienced ecologist:

- Clearance will be undertaken during the dormant season from an existing access track, haul route or previously cleared area and will proceed progressively into the scrub habitat under the supervision of a suitably qualified and experienced ecologist
- Vegetation will be cut in strips only as wide as can be safely reached by the machine without tracking onto uncleared habitat.
- An initial cut will reduce vegetation height to approximately 1m above ground level.
- Due to the safety implications associated with operating machinery and falling vegetation, the ecologist will not observe the cutting operation at close quarters. Machinery will therefore stop at regular intervals to allow ecological inspection of the newly cleared strip.
- Following each inspection, the ecologist will assess the cleared area for features that could provide reptile hibernation or refuge opportunities, including:
    - south-facing banks;
    - burrows and mammal holes;
    - dense vegetation tussocks;
    - log piles, deadwood and brash accumulations;
    - rock crevices;
    - rubble piles, compost heaps and similar refugia.
- Where no suitable hibernation or refuge features are identified, the strip may be cut down to ground level and subsequently used as the access route for clearance of the next strip.
- Where suitable features are identified, they will be clearly marked and protected from accidental damage. The ecologist will determine whether:
    - the feature can be avoided and retained;
    - the clearance works can progress around the feature; or
    - a supervised destructive search is required.
- Robocut-type machinery, remote-operated flails and towed cutting equipment will not be used within areas of suitable reptile habitat due to limited control over cutting height and the requirement for machinery to track through vegetation before it has been inspected and cleared.

3.3.4 Supervised Destructive Search of Potential Hibernation Features

Where vegetation management identifies a feature considered suitable for reptile hibernation, and avoidance is not practicable, a destructive search may be undertaken under the direct supervision of a suitably qualified and experienced ecologist.

As a precautionary measure, destructive searches would ideally be undertaken during the active reptile season, allowing any displaced animals to move freely into adjacent retained habitat. However, where scrub clearance must be undertaken during the hibernation period to meet programme requirements, and habitat suitability and survey data indicate a low

likelihood of supporting significant numbers of reptiles, a carefully controlled destructive search may be undertaken under direct ecological supervision to ensure compliance with relevant wildlife legislation and best practice guidance.

The following procedure will be adopted:

- Prior to commencement, the supervising ecologist will provide a toolbox talk to all site personnel and agree safe working methods with the machine operator.
- Smaller features such as log piles, rubble accumulations, leaf litter and similar refuges will, where practicable, be dismantled and inspected by hand.
- Larger features will be excavated using a 360° excavator fitted with a large, toothed bucket under constant ecological supervision.
- Machinery will not track onto uncleared habitat or enter any area until authorised by the supervising ecologist.
- Topsoil and associated habitat features will be carefully excavated, typically to a depth of approximately 300mm, although greater depths may be required around mammal burrows, tree root plates or other complex features.
- Excavated material will be placed in a cleared inspection area or directly into a dumper for ecological inspection. Depending on the scale and rate of excavation, more than one ecologist may be required to maintain adequate supervision.
- Any reptiles encountered will be immediately captured by hand and transferred to a secure container pending relocation.
- Captured reptiles will be relocated as soon as reasonably practicable to the designated receptor habitat at the North Portsea Island FCERM Scheme, Frontage 5 (Ports Creek), which provides suitable retained habitat connected to the wider receptor network within the site.
- All observations and captures will be recorded in the site reptile translocation log, including species, age class (where identifiable), location and date of capture.

4 Conclusion

The composite approach involving vegetation management, hand capture and reptile fencing, will allow for the safe reptile de-risking from Frontage 2 and Frontage 5 of the Langstone FCERM Scheme. In addition, management and planting regimes to be undertaken on site and detailed within the Construction Environmental Management Plan and the Biodiversity Net Gain Plan will compensate for the loss of the small area of habitat, providing net enhancement to support a range of reptile species. On completion of the Langstone FCERM Scheme construction and landscaping works, the reptile fencing will be removed from Frontage 2 and Frontage 5 and reptiles will be allowed to recolonise the area.

5 References

Froglife. (1999). *Froglife Advice Sheet 10 Reptile Survey: An Introduction to Planning, Conducting and Interpreting Surveys for Snake and Lizard Conservation.* Peterborough: Froglife.

Herpetofauna Groups of Britain and Ireland (HGBI) (1998). *Evaluating Local Mitigation / Translocation Programmes: Maintaining Best Practice and Lawful Standards.* HGBI Advisory Notes for Amphibian and Reptile Groups (ARGs). HGBI, c/o Froglife, Halesworth. Unpubl.

Natural England (2015). Reptiles: surveys and mitigation for development projects. Available at: https://www.gov.uk/guidance/reptiles-protection-surveys-and-licences (Accessed on 15.01.20).

Appendix C – Marine Biosecurity Plan

Havant
BOROUGH COUNCIL

Coastal
Partners



Langstone FCERM Scheme

Marine Biosecurity Plan

Contents

1 Introduction **3**

2 Location **3**

3 Marine Invasive Non-native Species within the Vicinity of the Langstone FCERM Scheme **5**

4 Biosecurity Pathways **9**

5 Biosecurity Measures **9**

6 Further information **10**

Langstone FCERM Scheme Marine Biosecurity Plan

1 Introduction

Non-native species have been introduced to the UK by human activity either deliberately (for cultural or economic benefits) or accidentally to an area outside of their natural range. There is a growing risk of the introduction and spread of non-native species through an increase in global shipping, recreational tourism, climate change and marine industries such as aquaculture. When non-native species grow rapidly, threaten native species and habitats, impact man-made structures or marine industries they become known as invasive non-native species (INNS). INNS have the potential to damage marine environments, the economy, our health and the way we live.

Within the Solent, high volumes of shipping, ferries and recreational boating have contributed to the spread of marine INNS and artificial structures within the area have helped a number of marine INNS to become established. Within the Solent, marine INNS are a threat to native biodiversity, recreation, fishing industries and have contributed to growing business operational costs through increased maintenance and cleaning of vessels and man-made structures.

Once established, INNS can be difficult to eradicate, control and manage. Biosecurity measures will ensure good practices are in place and outline steps to take to minimise the risk of introducing or spreading INNS in the marine environment.

2 Location

The Langstone FCERM Scheme is located within and adjacent to Langstone Harbour (Frontage 2) and Chichester Harbour (Frontages 2, 3, 4 and 5), which hold the following nature conservation designations (see **Figure 1**):

- Langstone and Chichester Harbours Special Protection Area (SPA) and Ramsar
- Solent Maritime Special Area of Conservation (SAC)
- Chichester Harbour Site of Scientific interest (SSSI)
- Langstone Harbour SSSI.

The intertidal habitat located within these two interconnecting harbours includes coarse sediment/shingle, mudflats and saltmarsh. Both Langstone and Chichester Harbours are connected to the Solent (**Figure 1**) which is a key entry point and hotspot for INNS in the UK, due to its high volumes of international shipping and recreational boating.

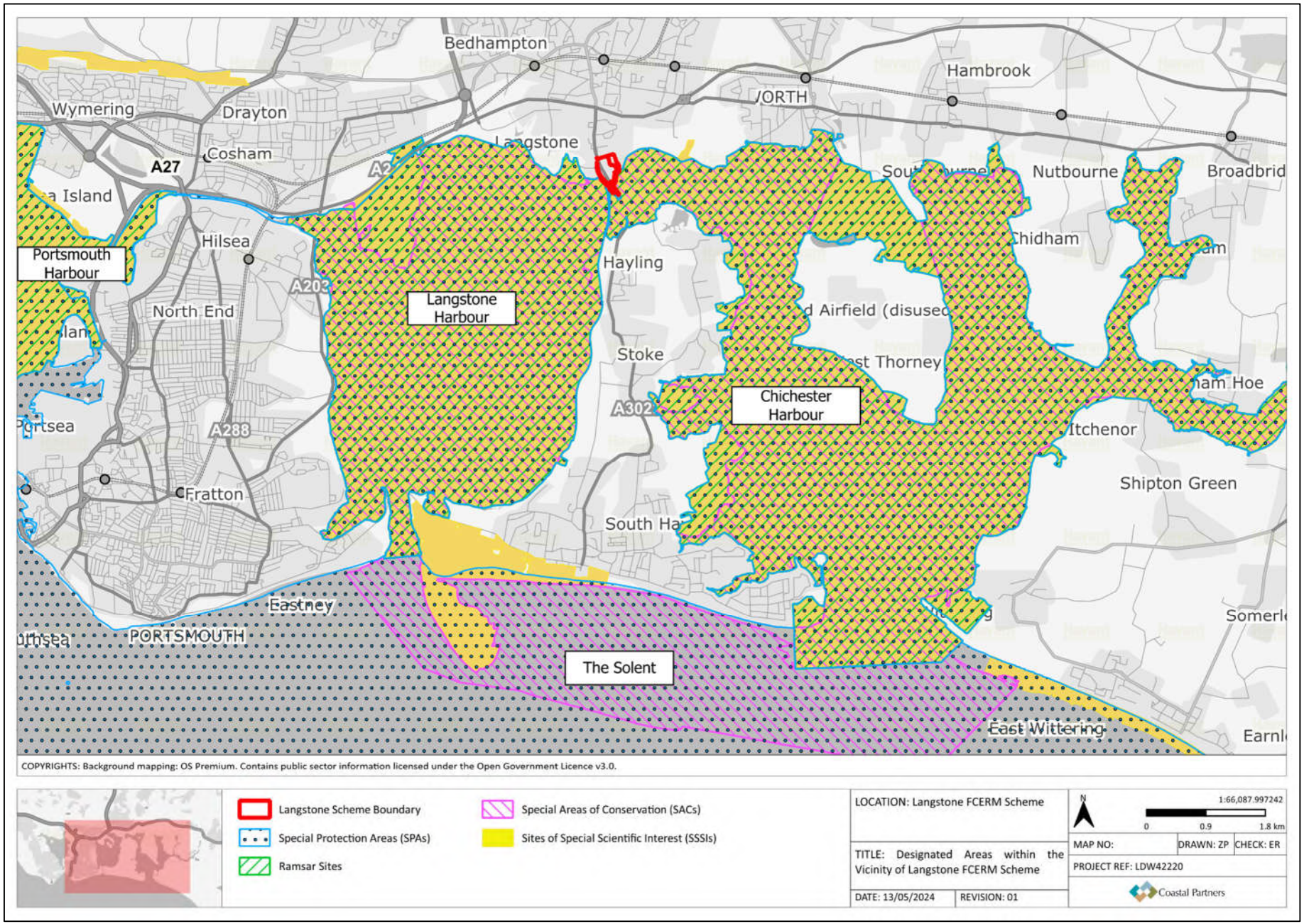
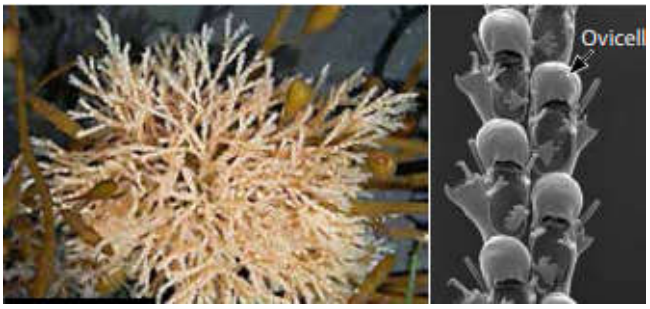


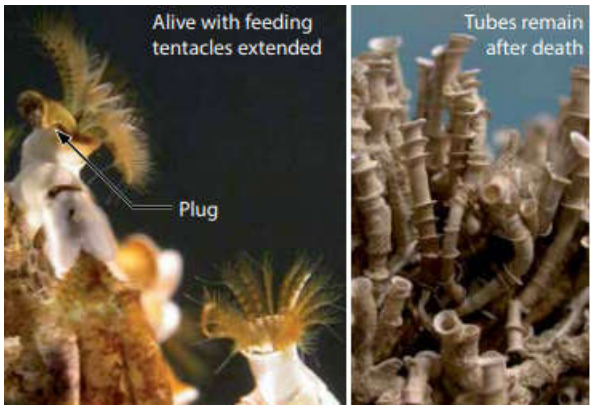
Figure 1: Designated Areas within the Vicinity of the Langstone FCERM Scheme Works.

3 Marine Invasive Non-native Species within the Vicinity of the Langstone FCERM Scheme

INNS	Description
	**Pacific oyster (*Magallana gigas*):** is a mollusc native to Japan and SE Asia. It is found on the lower shore in sheltered coastal waters and fixed onto artificial structures in harbours and marinas in the south of England. This species was found within the vicinity of the Scheme along the historic Wadeway causeway. They are present year-round and spawn in the warmer months. Pacific oysters have thick, hinged shells up to 18cm long, with the lower half attached to a solid surface, and have a wavy or saw-toothed shell margin. The Pacific oyster can displace native species (e.g. native oyster (*Ostrea edulis)),* alter habitats and ecosystems through forming reefs and their sharp shells become a hazard to humans and structures.
	**Slipper limpet (*Crepidula fornicata*):** is a mollusc native to North America. It is found attached to solid surfaces, rocks and shells within shallow coastal and lower intertidal waters in southern England and Wales. This species has been recorded in Langstone and Chichester Harbours and is widespread in the Solent. They are present year-round, have domed oval or kidney shaped shells (5cm long) and an internal flat shelf. The slipper limpet lives in stacks of up to 12 individuals, with the largest at the base. The slipper limpet can smoother other seabed species, alter seabed habitats and compete with other filter feeding species (e.g. mussels, oysters) for food and space.
	**Australasian or Darwin's barnacle (*Austrominius modestus*):** is a crustacean native to Australasia. It is found on hard surfaces such as rocks, shells, other crustaceans, artificial structures, intertidally on rocky shores and within estuaries. This species has been recorded in Langstone and Chichester Harbours. Adults are found year-round and live to 3-4 years. They reproduce year-round, but mainly in summer and early autumn. This barnacle is small (up to 10mm in diameter), white in colour, has four outer shell plates and a diamond shaped opening. The Darwin's barnacle can dominate hard surfaces, outcompeting and displacing native barnacle species.

INNS	Description
	**Tufty-buff bryozoan (*Tricellaria inopinata*):** is native to the Pacific. It is found attached to solid surfaces in shallow water in harbours, marinas and natural shores. This species has been recorded on the shores of Hayling Island's north coast. The tufty-buff bryozoan is present year-round. It is pale brown or pinkish-brown in colour. It is a flexible, densely branched colony growing as a 1-4cm high tuft. It is a fast growing fouling species and can compete with native bryozoan species for food and space.
	**Ruby Bryozoan (*Bugula neritina*):** is found attached to hard surfaces in shallow waters such as harbours and marinas. This species has been recorded on the shores and in the marina on the north coast of Hayling Island. This bryozoan will mostly die back in Winter and re-grow in Spring. It has a bushy red brown, golden brown or violet flexible growth up to 8cm and looks like a red seaweed. This wide spread sub-tidal fouling species can affect native biodiversity.
	**Carpet sea squirt (*Didemnum vexillum*):** is native to NW Pacific. It is found mostly in shallow waters (e.g. harbours, marinas) and in the intertidal zone in north Kent, Solent and Ireland. This species has been recorded on the shores of Hayling Island's north coast. The carpet sea squirt produces larvae in summer and autumn and dies back in harsh winters. They are pale orange, cream or off-white in colour and have a firm, leathery texture. They form extensive thin sheets and sometimes long pendulous outgrowths. The carpet sea squirt can cover extensive areas of the seabed and smother other species such as mussels and oysters as well as fouling marine infrastructure.
	**Orange cloak sea squirt (*Botrylloides violaceus*):** is native to NW Pacific. It is found in shallow waters in harbours and marinas, and intertidally on seaweeds and sheltered shores. This species has been recorded on the shores and in the marina on the north coast of Hayling Island. The orange cloak sea squirt produces larvae in summer and autumn and dies back in winter. Colonies form in jelly like sheets or cushions with individuals arranged in ovals or small rows, in a single colour of bright orange, violet, brick red, pink or yellow. Colonies can overgrow and smoother other species. They take up a large amount of space, outcompeting and displacing native species.

INNS	Description
	**San Diego sea squirt (*Botrylloides diegensis*):** is native to North America. It is found in shallow waters such as harbours, marinas and sheltered shores. This species has been recorded on the shores and in the marina on the north coast of Hayling Island. The San Diego sea squirt produces larvae in summer and autumn and dies back in winter. Colonies form jelly like sheets and individuals grow in meandering rows within it. The colonies are often orange in colour but can also be yellow and white. This sea squirt can smother and displace other native species.
	**Leathery Sea Squirt (*Styela clava*):** is native to NW Pacific. It is found attached to solid surfaces in shallow water, in harbours and marinas. This species has been recorded on the shores and in the marina on the north coast of Hayling Island. The brown leathery sea squirt attaches to solid surfaces by a narrow stalk, grows to 20cm tall and has two feeding siphons close together. It is present year-round and spawns in autumn. This sea squirt can dominate and displace other species through competing for food and space. It is also a fouling species and is known to impact aquaculture.
	**Orange-tipped Sea Squirt (*Corella eumyota*):** is native to the southern hemisphere. It is found attached to solid surfaces on sheltered shores, harbours and marinas. This species has been recorded on the shores and in the marina on the north coast of Hayling Island. The orange-tipped sea squirt is smooth, slightly translucent with orange-tinged siphons and grows up to 8cm. They are present year-round and reproduces in the summer. This sea squirt can overgrow and smoother other species, outcompeting and displacing native species.
	**Twin-keel tube worm (*Hydroides ezoensis*):** is thought to be native to NW pacific. It is found in ports, harbours and on rocks on the seabed. This species has been recorded on the shores and in the marina on the north coast of Hayling Island. The twin-keel tube worm has a white chalky tube up to 4mm wide and 45mm long with two parallel ridges and breeds in the summer. This tube worm is a fouling species and can outcompete native species.

INNS	Description
	***Hydroides dianthus* tube worm:** is found in ports, harbours as well as coastal waters. This species has been recorded on the shores and in the marina on the north coast of Hayling Island. It has a white chalky tube up to 1.5mm wide and 40mm in length. It is found attached to hard substrate in large aggregations. This tube worm can alter ecosystems and harm native species such as oysters.
	**Trumpet tube worm (*Ficopomatus enigmaticus*):** is found in sheltered, shallow coastal areas, ports, harbours, marinas, channels and lagoons. This species has been recorded in the marina on the north coast of Hayling Island. It has clumps of upright white chalky intertwined tubes (1-3mm diameter) with flared collars at intervals. Worms have banded, feathery feeding tentacles within the crown, which can withdraw into the tube. The tubes from this worm can alter local ecosystems and be a fouling nuisance.
	**Wireweed (*Sargassum muticum*):** is native to Japan and NW pacific. It is found on hard surfaces and rock pools in shallow water. This species has been recorded on the shores and in the marina on the north coast of Hayling Island. It is a olive-brown seaweed with alternating branches along a frond over 1m long. It looks like a 'washing line' when out of water (see image). This seaweed can overtop and shade other native seaweed and seagrass species.

Source: Marine Biological Association (2020). Identification Guide for Selected Marine Non-native Species: ID_Guide_for_Marine_INNS.pdf (solentforum.org).

The following species are also present but in smaller numbers and considered to be 'rare' on the shores and/or in the marina on the north coast of Hayling Island (see Mapping Invasive Alien Species in intertidal habitats within Natura 2000 sites in the Solent - JP042 (naturalengland.org.uk) for further details):

Aplidium cf. glabrum	Japanese sea spider *(Ammothea hilgendorfi)*
Creeping sea squirt (*Perophora japonica*)	Manila clam (*Ruditapes philippinarum*)
Red ripple bryozoan (*Watersipora subatra*)	*Solieriaceae*
Bugulina fulva	Wakame (*Undaria pinnatifida*)
Bugulina simplex	Devil's tongue weed (*Grateloupia turuturu*)
Bugulina stolonifera	Oyster thief (*Colpomenia peregrina*)
Orange-striped Anemone *(Diadumene lineata)*	

4 Biosecurity Pathways

No vessels will be used during the construction and operation of the Langstone FCERM Scheme works. However, the following activities have the potential to introduce, disturb or spread marine INNS during the Langstone FCERM Scheme construction works:

- Importing materials could introduce new INNS to the area.
- Using plant / equipment from outside of the water body could introduce new INNS to the area.
- Moving plant / equipment on and off the foreshore could disturb and spread INNS.
- The removal of the old seawall / structures and the construction of the new coastal defences could disturb and spread INNS.
- The disposal of the old seawall / structures may spread INNS to other areas.

5 Biosecurity Measures

The following biosecurity measures (which will be incorporated into the contractor's method statements and final CEMP) will ensure the Langstone FCERM Scheme minimises the risk of introducing and/or spreading marine INNS:

- No vessels will be used during construction.

- Ensure that any construction materials from a marine source or that has been stored in water have undergone biosecurity protocols with the supplier and have been checked for marine INNS at source.

- Ensure all equipment, materials, machinery and personal protective equipment (PPE) used are in a clean condition prior to their arrival on site to minimise risk of introducing INNS into the marine environment.

- The 'Clean, Check and Dry' approach will be implemented on site for construction equipment, hand tools and workers' PPE.



Check all plant, equipment, tools and PPE which has been used on and removed from the foreshore / marine environment for mud, aquatic animals or plants. Remove anything you find and leave it at the site.

Clean everything thoroughly as soon as you can.

Dry completely and for as long as you can before using again (as some marine INNS can survive for over two weeks in damp conditions, but most cannot survive long term desiccation / drying out).

See Check Clean Dry » NNSS (nonnativespecies.org) for further details.

- Report any 'suspect' marine plant or animal to the Coastal Partners Environmental Lead, who will report the INNS on https://irecord.org.uk/ and/or email finding details to: marineinvasivespecies@naturalengland.org.uk

- Best practise guidelines (Natural England and Natural Resources Wales Marine Biosecurity Planning guidance) will be followed to minimise the introduction / spread of invasive non-native species.

- Any materials to be removed from the site will be suitably classified and taken to an appropriate off-site disposal facility or treatment site.

6 Further information:

Solent Forum 'Solent Marine Invasive Species': Solent Forum - Solent Marine Invasive Species

Marine Biological Association (2020) 'Identification Guide for Selected Marine Non-native Species': ID_Guide_for_Marine_INNS.pdf (solentforum.org)

Natural England (2022) Taylor, J.G; Wood, C.A., Bishop, J.D.D. Mapping Invasive Alien Species in intertidal habitats within Natura 2000 sites in the Solent. Natural England and The Marine Biological Association Joint Publication JP042. Mapping Invasive Alien Species in intertidal habitats within Natura 2000 sites in the Solent - JP042 (naturalengland.org.uk)

Solent Forum 'Biosecurity Planning': Solent Forum - Solent Biosecurity Planning

GB Non Native Species Secretariat 'INNS Management Toolkits': INNS management toolkits » NNSS (nonnativespecies.org)

Appendix D – Ornithological Watching Briefs

Portsmouth City Council

Coastal Partners

Langstone FCERM Scheme:

Ornithological Watching Brief: Frontage 2

October 2026

Langstone FCERM Scheme Ornithological Watching Brief

1 Introduction

The protected coastal environment in Chichester and Langstone Harbour provides supporting habitat for a number of important species of bird. Habitats include extensive mudflats, sandflats and associated saltmarshes, eelgrass beds, coastal grazing marsh and shingle ridges and islands. These habitats support internationally and nationally important numbers of overwintering and breeding bird species.

The ornithology assessment for the Environmental Statement splits the potential impacts into the following categories of birds:

- SPA/Ramsar nonbreeding/overwintering birds
- SPA/Ramsar nonbreeding/overwintering birds using functionally linked land
- SPA breeding seabirds
- Egret/Heron breeding colony
- Terrestrial breeding birds

The potential impacts on terrestrial breeding birds at Frontage 2 (see **Figure 0.1**) will be mitigated through seasonal restrictions on vegetation clearance, avoiding the nest period of March – August. Any vegetation clearance within this period will only be undertaken following any suitable habitat being checked by a suitably qualified and experienced ecologist prior to commencement.

The impacts on any overwintering birds have been mitigated by restricting any construction works within Frontage 2 during this period (October – March inclusive). However, for the vegetation clearance within Frontage 2, a Watching Brief for overwintering birds will be required.

Chichester and Langstone Harbour SPA and Ramsar contain extensive intertidal mudflats and sandflats with areas of seagrass beds, saltmarsh, shallow coastal waters, coastal lagoons, coastal grazing marsh and shingle ridges and islands. These habitats support internationally and nationally important numbers of overwintering bird species, listed in Table 0.1. The WeBS Alerts for these qualifying species show a predominantly negative trend, with 11 of the 14 species experiencing long-term declines between 1996/97-2021/22. The most adversely affected species include shelduck (baseline change of -82%), bar-tailed godwit (baseline change of -81%), ringed plover (baseline change of -64%) and dunlin (baseline change of -52%) between 1984/85-2021/22. Pintail, red-breasted merganser and turnstone are the only species to experience positive baseline changes, however red-breasted merganser has experienced short-, medium- and long-term declines.



Figure 0.1: Location of Frontage 2 of the Langstone FCERM Scheme, including Chichester and Langstone Harbour SPA and Ramsar site.

Table 0.1: Qualifying ornithological features of Chichester and Langstone Harbour SPA and Ramsar site, including WeBS Alerts for short (5 years), medium (10 years) and long-term change (up to 25 years) between 1996/97 - 2021/22 and baseline change between 1984/85-2021/22 (Caulfield et al., 2025).

Common name	Scientific name	Designated site	Short-term change (%)	Med-term change (%)	Long-term change (%)	Baseline change (%)
Bar-tailed godwit	*Limosa lapponica*	SPA, Ramsar	-55	-71	-79	-81
Curlew	*Numenius arquata*	SPA	0	-15	-17	-17
Dark-bellied Brent goose	*Branta bernicla bernicla*	SPA, Ramsar	-20	-12	-6	-29
Dunlin	*Calidris alpina alpina*	SPA, Ramsar	-6	-26	-41	-52
Grey plover	*Pluvialis squatarola*	SPA, Ramsar	-17	-15	-59	-34
Pintail	*Anas acuta*	SPA	67	80	50	50
Red-breasted merganser	*Mergus serrator*	SPA	-34	-49	-44	13
Redshank	*Tringa totanus*	SPA, Ramsar	-6	-5	16	-7
Ringed plover	*Charadrius hiaticula*	SPA, Ramsar	7	0	-65	-64
Sanderling	*Calidris alba*	SPA	52	29	-12	-46
Shelduck	*Tadorna tadorna*	SPA, Ramsar	-12	-26	-61	-82
Shoveler	*Spatula clypeata*	SPA	9	-13	-11	-34
Teal	*Anas crecca*	SPA	-11	-22	-24	-40
Turnstone	*Arenaria interpres*	SPA	8	2	70	27

Overwintering bird surveys were conducted by Coastal Partners along the shore on the north and south sides of the Langstone Road bridge onto Hayling Island, in 2021/2022 and 2020/21. Of the qualifying features above, the following species were recorded within a 300 m radius of Frontage 2: brent goose, curlew, dunlin, grey plover, pintail red-breasted merganser, redshank, ringed plover, shelduck, shoveler and teal.

Table 0.2 and Table 0.3 show the monthly peak counts of qualifying birds during high and low tides in 2021/22 and 2020/21, respectively. Compared with 2020/21, the 2021/22 surveys indicate generally lower abundances for qualifying species of the SPA, particularly brent goose, curlew, grey plover, redshank and shelduck, although dunlin and teal remained comparatively abundant. The closest records to Frontage 2 were 60 m from the foreshore, with the majority >100 m from Frontage 2.

Table 0.2: Peak counts during high and low tide for qualifying features of Chichester and Langstone Harbour SPA/Ramsar during 2021/22 overwintering bird surveys

Species	**Monthly peak counts during high tide**							**Monthly peak counts during low tide**						
	Sep-21	**Oct-21**	**Nov-21**	**Dec-21**	**Jan-22**	**Feb-22**	**Mar-22**	**Sep-21**	**Oct-21**	**Nov-21**	**Dec-21**	**Jan-22**	**Feb-22**	**Mar-22**
Brent Goose	0	49	260	48	180	190	90	44	260	220	70	60	58	132
Curlew	0	1	2	1	1	1	0	2	2	3	2	3	2	2
Dunlin	1	11	350	450	8	1300	0	4	12	120	240	180	180	46
Grey Plover	1	0	240	5	42	140	2	0	2	3	3	4	3	1
Pintail	0	0	17	11	0	19	0	0	0	7	6	3	6	3
Red-breasted Merganser	0	0	14	3	12	9	4	0	0	3	6	3	4	4
Redshank	2	78	54	82	3	5	38	38	63	7	7	18	18	7
Ringed Plover	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Shelduck	0	2	8	0	4	14	5	2	0	14	10	8	12	13
Shoveler	1	0	0	0	0	6	0	0	2	0	2	2	4	2
Teal	33	47	53	22	72	175	83	25	43	24	28	32	28	16

Table 0.3: Peak counts during high and low tide for qualifying features of Chichester and Langstone Harbour SPA/Ramsar during 2020/21 overwintering bird surveys

Species	**Monthly peak counts during high tide**							**Monthly peak counts during low tide**						
	Sep-20	**Oct-20**	**Nov-20**	**Dec-20**	**Jan-21**	**Feb-21**	**Mar-21**	**Sep-20**	**Oct-20**	**Nov-20**	**Dec-20**	**Jan-21**	**Feb-21**	**Mar-21**
Brent Goose	0	0	568	281	506	506	447	55	18	159	310	337	273	129
Curlew	0	3	17	5	11	7	5	17	26	16	8	12	13	13
Dunlin	0	33	0	400	404	355	31	44	18	58	224	530	561	116
Grey Plover	0	37	0	48	1	63	1	2	9	16	24	11	16	0
Pintail	0	0	0	0	0	2	24	0	0	8	0	22	7	9
Red-breasted Merganser	0	0	9	1	1	0	4	0	0	1	11	20	13	2
Redshank	4	0	22	1	10	55	61	91	130	95	79	23	47	37
Ringed Plover	0	0	0	0	0	0	4	0	0	0	0	0	0	0
Shelduck	0	0	0	57	9	1	33	0	0	45	108	84	43	8
Shoveler	2	1	0	2	0	0	0	0	0	0	2	0	0	2
Teal	44	33	95	220	224	82	71	0	41	84	242	37	170	10

To ensure the vegetation removal works do not have an adverse impact on the qualifying features and general overwintering bird assemblage of Chichester and Langstone Harbour SPA and Ramsar site, a watching brief will be required during the works within Frontage 2 during the overwintering period (October – March inclusive).

An appropriate ornithological watching brief by a suitably qualified and experienced ecologist will be implemented at the commencement of the vegetation clearance. Bird distribution, abundance and behaviour will be closely monitored to assess any response. Subject to the initial outcomes of the watching brief and professional judgement, the watching brief effort may be reduced if it is demonstrated that the works are resulting in negligible disturbance to overwintering birds.

2 Watching brief methodology

Significant disturbance will be determined by expert opinion and, if required, consultation with relevant bodies, but could be reached by unacceptable daily effects or cumulatively, e.g. a pattern of effect amounting to an adverse impact. The observer undertaking the watching brief shall be a suitably qualified and experienced ecologist. The observer will record bird species and numbers present and their behavioural responses to any disturbance or construction activities.

The watching brief will be undertaken one day per week during construction activity for Frontage 2 for a period of 3 hours.

If there is an unacceptable behavioural response from the birds due to the works, the Ornithologist will report this initially to CP Environment Team, who will discuss with the CP Project Manager / Site Supervisor who has the authority to stop works until such a time as they both deem necessary. By having the watching brief in place, CP will ensure that if any significant disturbance does occur as a result of works activities, then appropriate management measures will be put in place immediately to address it. Such measures could range from the installation of acoustic barriers, implementation of timing restrictions to cessation of construction activities if other measures are not sufficient to avoid significant disturbance. These would be implemented until the works are complete or the overwintering period comes to an end (October – March inclusive), whichever occurs first.

Observations should be of the working area, from observation locations determined and agreed on site based on working areas and health and safety considerations. Any site chosen should have a clear view of the SPA and working area.

Observers will be onsite at relevant times throughout operating hours 07:00-19:00, generally one day per week, during daylight hours. However, some Saturday working may also be required in order to ensure completion. The watching brief will monitor the effect of the vegetation removal works, along with any compound set-up or demobilisation.

Construction works will be stopped during extreme weather events (frozen ground conditions for more than one week) to prevent any significant effect on SPA birds which would be under additional feeding / energetics pressure from cold weather/frozen ground conditions during such time.

3 Data to be recorded

1. *Date and time at start of count.*
2. *Time of low tide*
    a. *Weather at start and end of survey and any significant weather events during the day (temp, wind spend and direction, occlusion, comments)*
3. *Peak counts of bird species within the recording area; Species, numbers, behaviour (e.g. roosting, foraging), locations (plotted on maps).*
4. *Diary of effect of operational activity upon birds; time and event, and effect if any on birds. recording time and event, cause if applicable; bird species, numbers, direction of travel, destination if observed and comments on the severity of the effect. Log behaviour of birds using the categories below;*
5. *No response (NR)*
6. *Alert, heads up, no change in birds' position (A)*
7. *Alert, birds walked/swam short distance and resumed previous behaviour (W)*
8. *Birds flew short distance (<50m) and resumed previous behaviour in general area (f)*
9. *Birds took flight and flew more than 50m (F)*

10. *Log of recreational disturbance events; time and event will be recorded and effect if any on birds; determining the cause if possible using the categories below, and bird species, numbers, direction of travel, destination if observed and comments on the severity of the effect.*

- Dog walker DW
- Dog off lead DX
- Dog on lead DL
- Bait digger (use for Crab tiling, Cockle raking or bait digging) BD
- Cycling C
- Jogger J
- Fishing (from shore) F
- Walking / rambling (without dog) W
- Kids playing (with or without parents) KP
- Picnic P
- Windsurfer on water WS
- Kite Surfer on water KS
- Canoe on water CA
- Jet Ski on water JS
- Water skiing WSk
- Rib or similar fast small boat SMb
- Small sailing boat (e.g. Laser / dinghy) SS
- Moderate – large sailing boat, not running motor LS
- Large boat on outboard motor LMb
- Person working on boat (boat stationary) B
- Person accessing boat or water (e.g. windsurfers walking across mudflat) BW
- Motor vehicle MV
- Aircraft AC
- Rowing boat RB
- Birdwatcher BR

- Horse Riding HR
- Metal Detecting MD
- Bird of prey/wild mammals BP
- Other (please specify)

11. Behaviour of birds using the categories below;

- No response (NR)
- Alert, heads up, no change in birds' position (A)
- Alert, birds walked/swam short distance and resumed previous behaviour (W)
- Birds flew short distance (<50m) and resumed previous behaviour in general area (f)
- Birds took flight and flew more than 50m (F)

4 Reporting

At the end of every working day and any significant events occurring in between, text the task supervisor (Ed Rowsell on 07702 ***253) a brief summary of findings and any causes of concern regarding bird disturbance levels and/or health and safety concerns.

On a **weekly** basis (every Friday) A brief report of the week's findings. Data to be typed up in to excel or word and all maps to be scanned, to be sent by email to ed.rowsell@havant.gov.uk who will then circulate to other interested parties as required. A review will be made on a minimum of a monthly basis regarding the targeting of survey effort and any actions required. But actions to reduce disturbance or better focus survey effort to determine unacceptable disturbance will be taken as soon as they arise and in accordance to the proportionality of the risk of harm.

A monthly survey plan will be agreed and circulated to surveyors to target sensitive periods or activities identified from the programme and results of watching brief observations.

5 Equipment required

1. Adequate food and water
2. Sun (sun block, hat etc) and wet/cold weather protection clothing
3. Binoculars
4. Telescope and tripod (if required)
5. Maps of survey area
6. Writing paper or notebook (sufficient for all notes)

6 Health and safety

All surveyors should read the risk assessments and confirm that they have done so.

All surveyors to comply with the risk assessment at all times.

At no time without the approval of the site manager shall the surveyor enter the working area of the site, a safe location or routes with good visibility of the site should be chosen and agreed with the site manager. Should the surveyor not be able to properly observe the working area or they feel that it represents a risk they should contact the task supervisor immediately.

A text message to be sent to task supervisor; **Ed Rowsell (07702 ***253)** at commencement of survey (noting expected duration of survey) and upon completion of survey a further text message.

7 Contacts:

TBC

Portsmouth City Council

Coastal Partners

Langstone FCERM Scheme:

Ornithological Watching Brief: Frontage 5

October 2026

Langstone FCERM Scheme Ornithological Watching Brief: Frontage 5

1 Introduction:

The protected coastal environment in Chichester and Langstone Harbour provides supporting habitat for a number of important species of bird. Habitats include extensive mudflats, sandflats and associated saltmarshes, eelgrass beds, coastal grazing marsh and shingle ridges and islands. These habitats support internationally and nationally important numbers of overwintering and breeding bird species.

The ornithology assessment for the Environmental Statement splits the potential impacts into the following categories of birds:

- SPA/Ramsar nonbreeding/overwintering birds
- SPA/Ramsar nonbreeding/overwintering birds using functionally linked land
- SPA breeding seabirds
- Egret/Heron breeding colony
- Terrestrial breeding birds

The impacts on any overwintering birds have been mitigated by restricting any construction works during this period (October – March inclusive). For the vegetation clearance within Frontage 2, a Watching Brief will be required (see **Watching Brief: Frontage 2 (Oct 2026**).

The potential impacts on terrestrial breeding birds will be mitigated through seasonal restrictions on vegetation clearance, avoiding the nest period of March – August. Any vegetation clearance within this period will only be undertaken following any suitable habitat being checked by a suitably qualified and experienced ecologist prior to commencement.

This Watching Brief relates to the works at Frontage 5 and seeks to ensure there is no adverse impact on the birds at Langstone Mill Pond.

2 Watching Brief

Langstone Mill Pond is an established site for breeding little egret and is believed to be the only location in the UK where egrets breed outside of an existing heronry, although Grey Heron (*Ardea cinerea*) and more recently Cattle Egret (*Bubulcus ibis*) also breed within the colony. The number of Apparently Occupied Nests (AON) was recorded during the three surveys in 2021 and is presented in **Table 2.1** below.

Table 2.1 Heronry count records 2021 at Langstone Mill Pond

Species	April	May	June
Little Egret	5 AON	26 AON	25 AON
Cattle Egret	2 AON	4 AON	
Grey Heron	4 AON	5 AON	4 AON

An update on the use of the heronry by egrets in 2023 has been derived from data from the Hampshire Ornithological Society (HOS). Peak counts for Little Egret where no breeding code was provided are recorded in **Table 2.2** below. Data where breeding evidence was recorded is somewhat ambiguous with data for Little Egret showing confirmed breeding evidence with a May peak of 26 nests containing eggs, but also a record of occupied nests peak at 15 also in May. Data from the same source relating to Cattle Egret has not been submitted during the core breeding season due to the protection of rare breeding species but records a peak count of 15 birds in August and 14 in September and records confirmed breeding of 14 nests with young and 5 recently fledged young. It is unclear if this data for Cattle Egrets has been

recorded as nests or individual young, but based on the entirety of the evidence it is estimated that currently 7 pairs are breeding or attempting to breed in this location.

Table 2.2 Heronry count peak counts 2023 at Langstone Mill Pond from HOS

Species	**April**	**May**	**June**
Little Egret	49	28	60

Analogous data from HOS for 2024 and 2025 is presented below, in table 1.3, recorded at Apparently Occupied Nests (AON) for the three species in the colony.

Table 2.3 Heronry count peak counts AON 2024 and 2025 at Langstone Mill Pond from HOS

Species	AON 2024	AON 2025
Little Egret	37	27
Grey Heron	14	8
Cattle Egret	10	8

Whilst there is some variation in the data it would be safe to conclude that the heronry is currently fairly stable or increasing for Little Egret with 26-37 occupied nests recorded in between 2021 and 2024, but that the Cattle Egret population is expanding from 4 occupied nests in 2021 to potentially 10 in 2024. It is noted in the HOS data that scrub clearance during the 2025 breeding season disrupted nesting, which may account for the reduced numbers in that year.

Langstone Mill Pond is also known to support breeding Cetti's warbler (*Cettia cetti*). A single pair of Cetti's warbler have been regularly noted in the fringing reedbed of Langstone Mill Pond by Chichester Harbour Conservancy during ecological surveys between 2017 and 2021. Whilst breeding bird survey visits carried out by Coastal Partners between April and July 2022 did not identify Cetti's warbler within the Mill Pond, regular breeding activity (e.g. singing males) was noted during additional site visits during this period. As such, an ad hoc territory was included in Langstone Mill Pond in the final breeding bird survey report. Over 50 records of singing Cetti's warbler at Langstone Mill Pond were submitted to Hampshire Biodiversity Information Centre (HBIC) in 2023. Cetti's warbler were also heard singing during site visits for reptile translocations in August/September 2026.

Vegetation clearance in Frontage 5 is not permitted during the breeding bird season (March-August inclusive) to avoid disturbance of the egret/heron nesting colony and the breeding territory of Cetti's warbler. In addition no night working and no artificial lighting will be used between chainage 112-221. No site personnel to enter the woodland area around the egret/heron nesting colony during the bird breeding season March-August inclusive.

To ensure the construction works do not have an adverse impact on the nesting colony, a watching brief is required for the duration of the works within Frontage 5.

An appropriate ornithological watching brief by a suitably qualified and experienced ecologist will be undertaken to assess any impacts to nesting Little Egret (*Egretta garzetta*), Cattle Egret (*Bubulcus ibis*), Grey Heron (*Ardea cinerea*) and Cettis warbler (*Cettia cetti*) at Langstone Millpond during the nesting period (March to August inclusive).



Figure 2.1: Location map of Frontage 5 of the Langstone FCERM Scheme, including the compound area and approximate location of the Egret/Heron breeding colony.



Figure 2.2: Close-up aerial imagery of the egret/heron breeding colony located approximately 50 m east of Frontage 5, with egrets and herons visible as white dots.

3 Watching brief methodology

This ornithological watching brief will be in place for any pre-works that co-incide with the nesting season and construction works within Frontage 5 to ensure there is no significant disturbance effect on the egret/heron nesting colony at Langstone Mill Pond. Significant disturbance will be determined by expert opinion and, if required, consultation with relevant bodies, but could be reached by unacceptable daily effects or cumulatively, e.g. a pattern of effect amounting to an adverse impact. The observer undertaking the watching brief shall be a suitably qualified and experienced ecologist. The observer will record bird species and numbers present and their behavioural responses to any disturbance or construction activities.

The watching brief will be undertaken 3 days per week during construction activity for Frontage 5 for a period of 4 hours.

If there is an unacceptable behavioural response from the birds due to the works, the Ornithologist will report this initially to CP Environment Team, who will discuss with the CP Project Manager / Site Supervisor who has the authority to stop works until such a time as they both deem necessary. By having the watching brief in place, CP will ensure that if any significant disturbance does occur as a result of construction activities, then appropriate management measures will be put in place immediately to address it. Such measures could range from the installation of acoustic barriers, implementation of timing restrictions to cessation of construction activities if other measures are not sufficient to avoid significant disturbance. These would be implemented, until nesting attempts have been completed.

Observations should be of the working area, from observation locations determined and agreed on site based on working areas and health and safety considerations. Any site chosen should have a clear view of the SPA and working area.

Observer will be onsite at relevant times throughout operating hours 07:00-19:00, generally up to 3 days per week, during daylight hours. However, some Saturday working may also be required in order to ensure completion. The watching brief will monitor the effect of the construction of new defences, along with any compound set-up or demobilisation.

4 Data to be recorded

1. *Date and time at start of count.*

2. *Time of low tide*

3. *Weather at start and end of survey and any significant weather events during the day (temp, wind spend and direction, occlusion, comments)*

4. *Peak counts of bird species within the recording area; Species, numbers, behaviour (e.g. roosting, foraging), locations (plotted on maps).*

5. *Diary of effect of operational activity upon birds; time and event, and effect if any on birds. recording time and event, cause if applicable; bird species, numbers, direction of travel, destination if observed and comments on the severity of the effect. Log behaviour of birds using the categories below;*

    - No response (NR)
    - Alert, heads up, no change in birds' position (A)

- Alert, birds walked/swam short distance and resumed previous behaviour (W)
- Birds flew short distance (<50m) and resumed previous behaviour in general area (f)
- Birds took flight and flew more than 50m (F)

6. *Log of recreational disturbance events; time and event will be recorded and effect if any on birds; determining the cause if possible using the categories below, and bird species, numbers, direction of travel, destination if observed and comments on the severity of the effect.*

    - Dog walker DW
    - Dog off lead DX
    - Dog on lead DL
    - Bait digger (use for Crab tiling, Cockle raking or bait digging) BD
    - Cycling C
    - Jogger J
    - Fishing (from shore) F
    - Walking / rambling (without dog) W
    - Kids playing (with or without parents) KP
    - Picnic P
    - Windsurfer on water WS
    - Kite Surfer on water KS
    - Canoe on water CA
    - Jet Ski on water JS
    - Water skiing WSk
    - Rib or similar fast small boat SMb
    - Small sailing boat (e.g. Laser / dinghy) SS
    - Moderate – large sailing boat, not running motor LS
    - Large boat on outboard motor LMb
    - Person working on boat (boat stationary) B
    - Person accessing boat or water (e.g. windsurfers walking across mudflat) BW
    - Motor vehicle MV
    - Aircraft AC
    - Rowing boat RB
    - Birdwatcher BR
    - Horse Riding HR
    - Metal Detecting MD
    - Bird of prey/wild mammals BP
    - Other (please specify)

    Behaviour of birds using the categories below;

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5 Reporting

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On a **weekly** basis (every Friday) A brief report of the week's findings. Data to be typed up in to excel or word and all maps to be scanned, to be sent by email to ed.rowsell@havant.gov.uk who will then circulate to other interested parties as required. A review will be made on a minimum of a monthly basis regarding the targeting of survey effort and any actions required. But actions to reduce disturbance or better focus survey effort to determine unacceptable disturbance will be taken as soon as they arise and in accordance to the proportionality of the risk of harm.

A monthly survey plan will be agreed and circulated to surveyors to target sensitive periods or activities identified from the programme and results of watching brief observations.

6 Equipment required ;

1. Adequate food and water
2. Sun (sun block, hat etc) and wet/cold weather protection clothing
3. Binoculars
4. Telescope and tripod (if required)
5. Maps of survey area
6. Writing paper or notebook (sufficient for all notes)

7 Health and safety

All surveyors should read the risk assessments and confirm that they have done so.

All surveyors to comply with the risk assessment at all times.

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A text message to be sent to task supervisor; **Ed Rowsell** (07702 ***253) at commencement of survey (noting expected duration of survey) and upon completion of survey a further text message.

8 Contacts:

TBC